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VETERINARY MEDICINE

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Chicago

Lesions of Diseases in Swine
By J. S. KOEN

Amputation of Supernumerary Teats
By T. H. FERGUSON

Atmospheric Conditions and Veterinary Practice
By A. A. LEIBOLD

Ante-Partum Paralysis in Cows
By JOHN F. DeVINE

Eosinophilia and Parasitisms
By MAURICE C. HALL

Livestock Sanitation
By W. J. BUTLER

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VOL. XVII No. 1

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Veterinary Medicine

Vol. XVII JANUARY, 1922 Number 1

Editorial

THE FOUNDER OF THE PRESENT SYSTEM OF VETERINARY EDUCATION

CLAUDE BOURGELAT was born at Lyons, France, November 11, 1712. His father was a magistrate of Lyons and a noble by virtue of office.

He was educated by the Jesuits and studied law in the University of Toulouse and for a time served as advocate of the Parliament of Grenoble.

CLAUDE BOURGELAT
1712-1779

Surrounded with every need and comfort during his youth he spent much of his time in carefree idleness, and is described in a biological sketch in the HISTOIRE de l'Ecole d'Alfort as having been lazy, given to gambling and a seeker for pleasurable pastimes, devoting much of his time to horses. A glimpse into his true personality may be obtained from an anecdote that says, "He quit the law in disgust after having won a case in which a poor widow lost all her fortune but only after having reimbursed her in full for the loss she sustained."

Soon after quitting the law he joined the musketeers where through his scholarly attainments, knowledge of horsemanship and furor scribendi he gained national and then international renown as a hippologist of the first order, having been consulted by a no less personage than Frederick the Great.

His first work "A New Treatise on the Cavalry" and others were published incognito but later his name was connected with The Elements of Hippiatrics, which he published in three volumes. In these works, which appeared in 1750-1753, he already referred to the need of veterinary schools, and owing to the popularity of the books, the seeds of systematic veterinary education were implanted and they yielded fruit in the founding of the first school in 1762.

This determined the King, Louis XV, to grant a decree June 31, 1764, especially expressing his satisfaction by permitting it to assume the title of "Royal Veterinary School." At the same time his Majesty conferred on M. Bourgelat a grade of director and inspector general of the Royal Veterinary School of Lyons and all other similar schools to be hereafter established in the kingdom; and having given orders that several other schools should be formed upon the same plan as that of Lyons, and especially one in the neighborhood of Paris,

a building in Paris was obtained by purchase in December, 1765. Bourgelat immediately invited some of the students of Lyons who had made the best progress in the art and placed them for the winter in Paris, engaging them in dissecting and making anatomical preparations of various kinds. Thus was born the veterinary school of Alfort.

AMYLOLYSIS IN HERBIVORA

It has been a time-honored belief among nearly all of the domestic animal physiologists that the amylolytic properties of the saliva of herbivorous animals is feeble as compared with that of man.

That this should be the truth has always seemed remarkably strange in view of the need of an exactly reverse requirement. The large starch content of the feeds of these animals calls for a contrary condition; their saliva should for all intent and purposes be capable of starting the process of starch conversion toward entire completion before the food is delivered into the stomach.

Experiments with Collected Saliva

In experiments we have made with saliva dripping from an open Steno's duct we have always found that the liquid collected did not convert starch into sugar, in spite of the fact that when a well masticated bolus retrieved from the mouth of horses always showed complete conversion after proper incubation. From these findings we had long since concluded that the parotid gland did not secret much ptyalin and that its function was a physical rather than a chemical one, that ptyalin must therefore come from the other salivary glands and that much of the conversion was effected in the intestinal digestion by the enzyme of the pancreas—amylopsin.

Experiments Deceptive

How easily one may be deceived by experiments even when thought to be conclusive is shown by the investigations of Lieutenant-Colonel Watkins-Pritchard, R. A. V. C. (Vet. Jour. Sept., 1921), in which it was proved that the difference in the ptyalin content of saliva may be due to the method of collecting the sample. He has shown that saliva obtained after the administration of such sialagogues as pilocarpine and arecoline contains no such reagent as ptyalin, but when collected by placing a clean sponge in the well washed mouth of horses, starches were completely converted by the samples thus obtained. This simple experiment was made on ten different horses with the same general result.

These experiments seem to prove that there is a great difference in the ptyalin content of saliva flowing into the mouth under the stimulus of a palatable bolus and that obtained by unnatural means: sialagogues or duct fistulae. And they also show that the popular impression that starch conversion in the herbivora is effected chiefly in the intestinal digestion is erroneous.

The great care with which the herbivora reduce their feed into fine particles well mixed with saliva in the mouth before delivery to the lower digestive organs, in view of these facts, leaves little doubt that we have been mistaken about the relative importance of ptyalin and amylopsin.

Saliva Requirement Enormous

The student of this subject is also reminded that the amount of saliva required to convert starch into sugar is enormous and that experiments that do not take this into account will miscarry. A horse in eating hay incorporates it with four times its weight of saliva; oats and coarse grains with twice its weight; ground feeds with about equal parts and succulent food with one-half their weight.

SWAMP FEVER

Inquiries about swamp fever arrive with remarkable frequency, despite the fact it is much less prevalent than formerly. Northwest Canada and the Rocky Mountain states are the sources of most of them now; a few years ago they came chiefly from Minnesota and the Dakotas. Inquirers invariably request advice on the treatment, especially on the merits of the different drugs recommended from time to time by various practitioners and experimenters. It is remarkable how few seem to regard it as a disease that is incurable and one that should be dealt with as a dangerous infection.

Course Deceives

The truth is swamp fever deceives the therapist by its febrile phase, and by the invigorating influence of persistent tonic treatment. Positive recoveries have been reported, but in view of the facts the practitioner can hardly be blamed for having made them, yet no one, as Van Es has said, is justified in announcing a recovery when it is not substantiated by positive proof that the blood of the subject

is no longer virulent, together with evidence of complete restoration of health.

Very few cases, either of the anemic or the non-anemic forms, have ever been known to recover, and even among these few the element of doubt was never entirely removed, since none reported in current literature were confirmed by experimental evidence.

Among the drugs that have been given a good and sufficient trial are arsenic, quinin, mercury, atoxyl, sulphate of iron, antifebrin, potassium iodid, trypan-blue, sodium cacodylate, liquid cresolis and others. All of these have failed.

As little additional work has been done since Van Es, Harris, and Schalk made an extensive series of experiments in North Dakota, reported in detail in 1911, we may quote them with profit to the practitioner today.

An Extensive Experimentation Summarized

Summarizing the results of the investigation, the writers felt warranted in submitting the following conclusions:

1. Swamp fever is a disease of infection, transmissible by cutaneous and intravenous injection and by ingestion through the alimentary canal.

2. The virus producing the disease is contained in the blood and urine of affected animals, but it is absent from the feces.

3. The virus has thus far been demonstrated only in an ultra-microscopic form.

4. The virus is resistant to the severe freezing weather of our more northern climates.

5. While not denying the possible transmission of the disease to healthy animals by means of insects and parasites, animals contract the disease naturally by the ingestion of food and water, contaminated by the urine of an infected horse.

6. The disease is essentially a septicemia, anatomically marked by sub-serous and sub-endocardial hemorrhages in the more acute forms, by occasional involvement of the lymph nodes and spleen, by degenerative changes in the parenchyma of heart, liver, and kidneys, and probably also by certain alterations in the bone-marrow of the long bones of the limbs.

7. The chief and most constant manifestations of the disease are fever and albuminuria. The former is remittent or intermittent, not uncommonly at more or less regular intervals, while the latter is transitory and frequently synchronous with the febrile exacerbations.

8. Many cases of swamp-fever terminate fatally without a marked reduction in the red blood cells, a fact denying the popular conception of "swamp-fever" being primarily an anemia.

9. The blood of an animal may remain virulent for as long as thirty-five months after the initial infection, without the infected horse manifesting any clinical evidence of the fact.

10. Such non-clinical infection carriers probably play an important part in the establishment of more or less permanent centers of infection.

11. Both trypan-blue and atoxyl are worthless in the treatment of the disease.

12. In the light of our present knowledge we have to depend upon such prophylactic measures as the destruction of diseased animals, segregation of suspects, care in introducing new horses into the stable, the safeguarding of food and water supply from urine contamination, pasture drainage and stable disinfection.

POST-GRADUATE COURSE AT THE INDIANA VETERINARY COLLEGE

Veterinarians interested in post-graduate work are reminded that the Indiana Veterinary College, Indianapolis, Ind., will give a post-graduate course during the month of January, repeating with improvements the course given at that institution last year with such success and satisfaction to everyone who took advantage of it.

The need of taking post-graduate work by veterinarians is not questioned in view of the fact that such revolutionary changes have taken place in the realm of veterinary practice. An institution that will place a good short-course of instruction prolific with the many things that practitioners should know should be commended and is deserving of the support of the entire profession. The purpose of entry into this field is not to advertise a college, but to aid a principal and help to supply a need, the need of assisting the existing personnel of which the profession will be constituted for years to come, unassisted by very many replacements from the colleges now functioning.

The microscope has posed more questions than it has answered; more theories than it has demonstrated; more mysteries than it has cleared up; and more puzzles than it has solved. It still finds its best condonation in the great unexplored fields it has opened to the gaze of the inquisitive.

Editor's Personal Page

A Happy New Year!

Constructive criticism is useful only when destructive enough to remove harmful influences.

Financial independence is every one's goal, but be sure not to miss all of the nice scenery along the road while traveling to that end.

Before giving any thought to changing your occupation, be sure you have surveyed all the prospects of the one you have spent years to learn.

The telephone is the front door of your establishment. It should always be kept open and answered with a cheerful condescension that may calm the ruffled state of mind at the other end of the wire.

When business is bad don't growl about it; sit tight to your job so you do not miss anything that comes along; reduce your expenses to the minimum; and last, but not least, read lots of good literature to prepare for the better days ahead when you will be busy.

The farmer who complains about the price of oats raised with a tractor is to be pitied about as much as the idle veterinarian who buys filled milk and butterine for the family table, while his best clients are selling their dairy products below the cost of production.

Practitioners are neglecting dentistry almost everywhere; it is being forgotten; it is not practiced at all in many regions; the young veterinarian knows less about it than his predecessors; and its technique is passing to the lost arts, although it is as much needed as ever in all of the domestic animals.

That the annual expenditures are lowest and the salvage highest where it is the practice to call the veterinarian early and for trivial as well as for serious complaints, is a matter that we must drive into the minds of our clients. We must show that we can do other things than that of saying last rites to incurables.

As the practitioner is the "trouble man" of the live stock interests, and is always circulating among people who are in more or less abnormal state of mind, a display of good temper and a little diplomacy will often accomplish more toward straightening things out than medical skill.

The fact that lawyers always seem to be able to secure expert testimony to suit their side of the case, is no credit to the professional man.

A judge addressing two doctors (not veterinarians) recently, after they had given contradictory evidence, said: "One of you has said one thing and the other the direct opposite, compelling me to seek the facts elsewhere. You doctors, although we have placed confidence in you, seem to be willing to say anything that suits your side of the case, thinking, of course, that we are fools."

The World's Poultry Congress

We commend to our readers the contributions on the World's Poultry Congress by Dr. B. F. Kaupp appearing elsewhere in this issue. The magnitude of the convention, the interpretation of its importance all over the world, the high standing of its reporters and patrons, the scope of its deliberation on pathologic and hygienic subjects, and of the resolutions passed all presage the opening of a field for the veterinary practitioner that has heretofore been left for the husbandman to exploit unaided. Poultry husbandry is a field we can no longer afford to ignore and the veterinary profession in this country is fortunate in having such a profound student of the subject as Dr. Kaupp to inspire it and to have represented it so ably in foreign lands.

Original Contributions

The Lesions of Disease in Swine

By J. S. Koen, Bloomington, Ill.

Definition

Lesions may be defined as any change in structural texture of morbid organs. Lesions as we shall consider them in this paper are the gross macroscopic changes that indicate or characterize diseases of swine.

Complications the Cause of Confusion

It is often quite difficult to make a positive diagnosis of diseased conditions found in swine. Complications are more the rule than the exception and often obscure the primary cause of trouble and confuse the investigator. However it is my humble opinion that diseases in swine, as in other species, do produce definite lesions that are constantly or usually present and therefore deserve the designation typical or characteristic lesions of these diseases. In most instances these lesions will be accompanied by other lesions typical of any one disease and it devolves upon the investigator to recognize the true lesions in spite of complications. Experience, and experience alone, will teach them and their significance. This must be broad and extensive.

Co-operate With the Laboratory

Class room and laboratory training seldom qualify one as a diagnostician of field conditions, but rather years of investigations of diseases encountered on the farm coupled with the results of treatment, enables one the more accurately to arrive at successful conclusions. The ideal experience is the correlation of field and laboratory investigations and to this end the practitioner should utilize as much as possible the helpful services extended to him by the numerous laboratories if he would become proficient in recognizing lesions of diseases in swine.

Autopsy Training Helpful

The outline presented herewith is the result of an unusual opportunity for such experience covering a period of fourteen years. For five years it was my privilege to pass final inspection on retained carcasses at the large packing houses in Kansas City. Then came six years of intensive field experience as inspector in charge of hog cholera control work in Iowa, during a part of which time we were engaged in combating the most extensive and disastrous epidemic of hog cholera and swine diseases in the history of our country. The past three years have been given over largely to consultation work in trouble cases. If this experience has been of benefit to me I should like to share it with you. It has led me to accept certain lesions as characteristic in swine diseases.

Conflicting Opinions Embarrass the Practitioner

My sympathies are with the practitioner. My work has been largely similar to his and in most instances in co-operation with him. When I listen to or read the conflicting opinions of those who are accepted as experts and authorities I am most sorry for him. Indeed, as John Chinaman would say, "Me solly for meself." One thing has been settled if nothing more. A mixture of opinion exists. Almost sufficient to justify the conclusion that MIXED INFECTION is the only sure condition found in swine. This is the one condition that does not present typical lesions. Almost any lesion may be expected and encountered and in some cases apparently a conglomeration of all. The term is practically all-embracing, may cover a multitude of troubles (and sometimes too may cover a multitude of sins) and is most convenient when we do not care to admit, "I do not know," or when it is impossible to know by the gross lesions presented. That I use the term is proof I believe in it and find it helpful.

Lesions of Hog Cholera

The lesions of hog cholera will be considered first for the reason it is by far the most important disease of swine, if not more important than all other diseases combined.

From the standpoint of mortality and as an economic problem to be solved I believe it is more important than all other diseases combined. When we are able to recognize cholera and control it the one big question in swine practice will have been answered. And this is not impossible. That cholera produces definite lesions is my sincere belief. **I have little patience with the theory that this is a lesionless disease.** If this be true we are never justified in making a diagnosis of cholera excepting in such cases as present no lesions. Who would justify or be justified in such procedure? That we do not know the cause of cholera does not warrant such a conclusion. We do know its manifestations. Like electricity, we do not know just what it is, but we know what it does. I doubt if there is any one who is willing to go onto a farm, investigate a bunch of sick hogs, and make a positive diagnosis of cholera without the support of lesions. What then are the lesions of cholera?

Orthodox Notions Erroneous

To speak in general terms and state they consist of certain kinds of hemorrhages into the various organs of the body and are accompanied by certain symptoms and a history of exposure would not satisfy any one.

Two years ago at the mid-summer meeting of the Missouri Valley Veterinary Association, I undertook to answer this question by outlining "A Practical Method for Field Diagnosis of Swine Diseases." I have had no occasion since then to change my opinion that there are **three lesions so constantly found** as to justify their classification as characteristic. They are:

1. The **peripheral congestion** of the lymphatic glands especially the cervical and mesocolic glands in the early stage of the disease. The glands may later become quite or entirely congested, yet still the congestion of the periphery will be emphasized.

2. The **ecchymotic hemorrhages** in the lung. These are distinct and circumscribed, vary in size, but as a rule considerably larger than petechia found elsewhere. These do not wash nor rub off, nor do they run together as the knife is drawn across the surface of the lung. They are independent of any area of pneumonia. When I find evidence of pneumonia in a case of cholera I consider it a complication and not as evidence of cholera. These ecchymotic hemorrhages are bright red in color in the early stage of the disease, but later change to a darker shade. I consider them the safest lesion upon which to base a diagnosis if there be any other evidence to support it.

3. The **spleen** is usually **involved** in cholera. There may be only congested areas along the edges but more frequently it will be enlarged, friable and darkened in color. The bright red dots over the surface are not to be considered.

These three lesions will not always be found in the same hog, yet one or more of them will be found in nearly all cases where the filtrable virus is the primary cause of trouble. They will also be the predominating lesion and will be supported by sufficient other lesions to warrant a diagnosis of cholera. Other lesions will usually be found in the skin, eye, epiglottis, bones, pleura and peritoneum, kidney, bladder, liver, or the mucous membrane lining the stomach and intestines, especially in the region of the ileo-cecal valve.

The **eyes** will **show** marked **congestion** with a watery discharge at first which later becomes muco-purulent and causes gumming of the eye lids.

The **skin lesions appear** on the portions of the body **where** the **skin is thin,** as on the belly, the inside of the legs and the ears. They consist of well marked circumscribed hemorrhages varying in size, but usually the size of a navy bean. They do not show until the disease has made considerable progress therefore their significance as a diagnostic lesion is not so important as others. However, we know of no other disease that produces a like lesion.

The **bones** appear to **lose** much of the **bright red color** in pigs showing an early high temperature. Later they become quite dark and are often referred to as black. This is readily observed in the ribs and vertebrae.

Small, distinct, circumscribing, **punctiform hemorrhages** characterize the lesions to be **found on the epiglottis, pleura** and **peritoneum, kidney** and **bladder.** Instead of considering the petechia as pathognomic they should be considered simply as supportive evidence in connection with other lesions present. This lesion may be the result of cholera, necrobacillosis, an irritant or of glomerylar nephritis.

Lesions of the Mucous Intestinal Membrane

The mucous membranes lining the stomach and intestines may show only petechial hem-

orrhages but more frequently will show a more diffuse congestion. This usually shows first in the region of the ileo-cecal valve. The button ulcer that was formerly considered typical of chronic cholera is not so considered at the present time by a large number of investigators. Cholera may be a predisposing factor but not the cause.

Interpretation of the Lesions

Now as to the application of these lesions. Frequently it will be your lot to make a diagnosis where the evidence is not well marked, where the lesions are slight. In such cases, and I think in all cases, you should have at least three lesions, to warrant a diagnosis of cholera. The diagnosis should also be supported by the usual symptoms and where possible by history of exposure. Where less evidence is found and it is impossible to make a positive diagnosis, a guarded diagnosis of cholera is warranted with a recommendation that the herd be treated with serum and virus. Cholera should always be suspected and no other diagnosis is warranted until it has been absolutely excluded.

As stated in the beginning, complicated cholera is the rule under field or farm conditions. Serum and virus will combat the cholera, but not the complications. The additional use of bacterins in infected herds will be justified by the better results obtained. This line of treatment has been conclusively demonstrated during the epidemic of swine diseases this fall.

Swine Plague or Hemorrhagic Septicemia

Little need be said as regards other diseases of swine, swine plague or hemorrhagic septicemia. As a separate and distinct disease of swine it is rare. A few years ago our meetings and journals were full of discussions on this subject. Now it is made conspicuous by the silence regarding it. It is more serious as a complication of cholera than as a separate disease and as such it is more frequently found.

When found, the lesions differ from those of cholera. The lymph glands are congested throughout. Blotchy hemorrhages will be found over the lungs, heart, serous membranes, and throughout the carcass. Diffuse, extensive congestion over large surface of skin particularly over the belly. Lesions of the thoracic cavity predominate, and in advanced cases there will be much evidence of pneumonia usually with pleuritic adhesions. The spleen is not involved.

Necrobacillosis. Necrotic Enteritis

Necrobacillosis. The lesions of necrotic stomatitis and rhinitis are well known.

Necrotic enteritis. This is undoubtedly a mixed infection. It is characterized by diffuse necrosis of the mucous membrane lining, either the small or large intestine. The affected membranes may be either tough or granular and mealy. Frequently we find the necrosed membrane assuming the character of a false membrane lining the cecum. It is thin, dark colored, and on removal discloses a very acute inflammatory condition beneath.

Parasites

Ascaris infestation of the lung. When the young ascaris migrate to the lung they produce an ecchymotic lesion very much like that of cholera. Accompanying this infestation there is practically always edema of the lung. Edema is not present in cholera as a rule so there should be no confusion in this respect. Too, the other lesions, symptoms and history of cholera will be lacking.

Influenza

The lesions of this condition are enlarged and congested cervical lymph glands. The congestion extends throughout the glands. An area of inflammation surrounds the bronchi and bronchioles, together with some slight lobular pneumonia, although as a rule but little of the lung is involved. The bronchial glands are usually enlarged and congested. This condition will confuse one more than any of the others until one is familiar with it, particularly when the symptoms alone are considered. On account of the suddenness and severity of the attack, high temperatures, a herd disease, and with slight lesions many mistaken diagnoses of cholera have been made.

No damage is done when such a mistake is made on a susceptible herd and serum and virus used. On the other hand, the danger lies in calling the condition a "break" where the herd has been previously vaccinated. Experience with a few outbreaks usually enables one to differentiate these conditions.

The Problem of "Breaks" More Complicated

The outline is intended to be useful in making a diagnosis of swine disease in herds that have never been treated. I have purposely refrained from injecting the lesions of "breaks" as each one is a case unto itself. Endless discussion could be indulged in without settling the issue. We should look to the cause of the break, if possible, to determine it. Frequently this is found to be a mistaken diagnosis.

The First World's Poultry Congress

BY B. F. KAUPP, RALEIGH, NORTH CAROLINA OFFICIAL DELEGATE FOR THE NORTH CAROLINA EXPERIMENT STATION

Education is the greatest factor in the uplift of the world. Where there is ignorance there is darkness and slothfulness, and advancement is impossible. Education brings light and life, enthusiasm, energy and progress. Thus we hailed the First World's Poultry Congress, held September 4th to 15th, 1921, at The Hague, Holland.

Here were congregated the finest intellects of the poultry world, scientists as well as the men of practice. From more than twenty-five lands they came to contribute their quota of knowledge, much of which had been known only in their own countries. Thus, all engaged in spreading the light. From America, Australia, New Zealand, South Africa, England, Ireland, Scotland, Denmark, Holland, Austria, Belgium, Italy, France, Switzerland, Spain, Portugal, Egypt, Ceylon, India, and other countries were poured forth such a mass of men and educative matter the poultry world has never known.

Papers and discussions dealing with both the old and new phases of poultry husbandry that have puzzled and perplexed the breeders of the world will throw new light on much that is at present mysterious and confusing. From the World's Poultry Congress will emanate such strong rays of light that the pathways of the poultry breeders of all nations will be straightened and made plain. The greatest good that will come from this Congress is the meeting and mingling of the poultry workers of the world, and in the exchange of personal ideas.

Royalty Interested in the Congress.

The congress was divided into two parts, that of papers and discussions, and the exhibition. The exhibition consisted of educational booths and of the display of more than 2,000 birds typifying the various breeds of the world. The educational exhibit included two booths of disease; one from the state serum laboratory of Rotterdam, Holland, showing many scores of preserved specimens from fowls, including tuberculosis, roup, diphtheric enteritis, parasites, etc. The other exhibit was from the North Carolina Experiment Station poultry research laboratories and consisted of enlarged photographs of tumors, blackhead of turkeys, etc., as well as prepared specimens.

The exhibition at the zoological gardens was formally opened by Queen Wilhelmina of Holland and the Prince Consort at 2:00 P. M., Monday, September 5th. After which, the Queen and Prince were present at the formal opening of the convention at the Krerhaus.

An Excursion.

Recess relaxation from strenuous convention room labors were given on Monday the 12th, when an excursion was made to Rotterdam and Vlaardingen. At Rotterdam was visited the government serotherapeutic institute where are investigated animal diseases, including diseases of poultry and also the function carried on in America by the biological houses. It is in these laboratories that serums and vaccines are prepared for veterinarians in Holland. There are kept in these stables 150 horses, 60 cattle and 200 hogs for serum production. These laboratories also examine milk and water for health purposes. Seventeen different kinds of sera are prepared. These include sera for contagious pneumonia of horses, strangles of horses, tetanus, abortion of mares, anthrax, blackleg, foot and mouth disease, white scours of calves, septic pleuropneumonia of calves, abortion of cows, inflammation of the udder of cows due to streptococcus, pyogenes bacilli, coli bacilli and ovae bacilli, erysipelas of swine, infectious pneumonia of swine, swine fever, fowl cholera, serum and vaccine against fowl typhoid.

Recommendations of the Congress.

The congress passed a resolution recommending (1) the study in the different countries of the necessity or non-necessity of taking official measures against epiornithics (outbreaks of contagious diseases) of fowls; (2) to study, in the case of necessity above mentioned, which of the diseases ought to be combated by those measures; (3) to continue in the different countries researches in bird diseases and hygienic measures to be taken, especially in those covering the application of vaccines and serums by appropriated laboratories or bureaus; (4) that in every country where the raising of domesticated birds is developed as a precious means of existence and of economical production, the teaching of bird diseases ought to be organized in an adequate manner in veterinary and agricultural colleges.

Livestock Sanitation

By W. J. Butler, Helena, Montana, State Veterinarian

Many pages could be written upon livestock sanitation. This paper, however, is short. It is written with the hope it may bring some new thought to you and be the stimulus to a healthy discussion. It deals not with the prosaic routine of sanitation. The routine of sanitation may be found in any standard book on this subject.

With the advancement of mechanical engineering which has made possible our large cities and industrial centers, the need of livestock and human sanitation has become more apparent. Without sanitary measures large cities and market centers could not exist. Disease would take an unjust toll and wipe them from the face of the earth.

The Centers of Contamination

The mission of those interested in livestock sanitation must center itself mainly in our rural districts. Their work, however, also extends to our market centers. In fact, during outbreaks of dangerous diseases these centers may become the main foci of infection. For this reason there must always be maintained at central stockyards a competent corps of livestock sanitarians. Upon them falls the task of preventing the spread of livestock diseases from one rural district to another.

A few years ago the horse was an important live stock factor in our large industrial centers. Each year, however, he becomes, in these centers, a less important one. Mechanical motive power is displacing him, true as it is that on short hauls horse power is more economical than the other. Nevertheless, the horse seems doomed in large cities. Speed, adaptability, congestion and modern smooth slippery streets will be the deciding factors.

Horses Needed on the Farms

While this is true of cities the reverse must hold in the rural districts. To supply the ever-increasing needs of our industrial centers our livestock population must be increased. Livestock must be increased not only in numbers but in quality and in health. The animal of the future must be bred and fed to equal two animals of the past.

Appalling Death Rate

In addition to this our livestock death rate must be decreased fifty per cent and more. What an enormous economic loss occurs each year through our lack of knowledge and carelessness. Vital statistics are not kept of livestock, therefore our estimate of their death rate must be conjecture. In the old range days we figured our normal loss at 3 per cent. This was our loss of matured stock and did not take into consideration our calf loss. With the passing of the open range, we are confident we are not far amiss when we say the animal death rate in livestock is not less than 20 per cent. This, of course, takes into consideration our loss of young stock as well as matured stock. What a tremendous waste in foods and what an enormous economic loss this death rate represents.

More Livestock Needed

With our human population increasing by leaps and bounds we must starve or raise two animals where before we raised but one.

The slogan "better sires," "better stock," is commendable, but to this should be added the equally commendable slogan "more sanitation," "more stock."

Livestock not only produce animal foods and textures necessary to our industrials, but are essentials in diversified farming. Without livestock many of our farms could not exist. Animal matter contains the amino acids necessary for the healthy life-giving property of our grains. In addition to their being of food value they supply many life-saving remedies. Without animals there would be no serum or organo-therapy to save the lives of millions.

The New Conception of Etiology

Each year the belief grows that sickness, either infectious or otherwise, is due primarily to disturbances in nutrition. As one author has aptly said, "There are predisposing influences that cause an infection to eventuate in disease." We therefore feel justified in our belief that future medicinal treatment will be based not upon drugs, but upon nu-

trition, organo-therapy and serum therapy associated with vitaminic and enzymic therapy.

The Veterinarian Altruistic As Well As Scientific

What an important factor the veterinarian with his knowledge of nutrition and care of animals is to play in the future field of medicine! Not the veterinarian of the old school but the veterinarian versed in laboratory technic, pathology and comparative sanitary medicine.

It is indeed a wonderful heritage we of the younger generation have inherited from our predecessors; open air men, students of animal life, a truer or more unselfish or more sympathetic group of professional men never existed. Well may we be proud of their untiring, but oftimes unrewarded and unrecognized contributions to the field of medicine and surgery.

Healthy animals are necessary to mankind. Diseased animals are a menace to mankind. To the veterinarian and more particularly to the veterinary sanitarian is alloted the task of determining whether animals shall be a menace or a blessing to the human family. It is his task to eradicate animal diseases and thus prevent their transmission to mankind. In addition to this herculean task he must serve his fellow-men by furnishing to them through the livestock in his charge, the various organo-therapies and serum therapies.

The greater the advance in mechanical engineering, the greater the urban population. The greater the urban population, the greater the need for the sanitarian, be he engineer, medical or veterinary. The greater the need for the sanitarian the greater the use of vaccines and serums; and associated with vaccines and serums must necessarily be organo, enzymic and vitaminic therapy.

The Veterinary Sanitarian Must Be Well Qualified

Strange as it may seem, one of the most important factors is human nature. Without being fair and impartial and a judge of psychology the livestock sanitarian will not succeed.

Naturally, in addition to being a judge of human nature he must be versed in his profession. That is the fundamental principle that holds good in all walks of life. As doctors of veterinary medicine we must know comparative pathology and know it well. Postmortem examinations are most important. An autopsy should be made on all animals destroyed, or which die from an undiagnosed condition. Without an excellent working knowledge of pathology postmortems are next to useless. If a diagnosis cannot be made from allergic tests, clinical, or postmortem observation then the laboratory must be used to assist in making it.

Laboratory Diagnosis Required

In order that the laboratory may be able to render efficient service, tissues and specimens must be received by them in good condition. This is a matter very often overlooked by the field veterinarian. Tissues should be carefully selected; thoroughly packed and preserved in a proper manner. In addition to this a note giving the disease suspected and other data should accompany the tissues. The manner and care with which tissues and samples should be sent to a laboratory and the data which should accompany them is most important. If a veterinarian is careless in these matters he will be careless in his other work.

With respect to laboratory diagnosis it is to be remembered that the laboratory is not infallible. In many instances it can but corroborate the clinical or postmortem findings. A negative laboratory finding does not necessarily negative the postmortem findings. It is a wise plan, however, always to check our postmortem findings with laboratory diagnosis.

A Look Around the Premises Important

When once a correct diagnosis has been made it is essential to make a complete survey of all diseased and exposed animals and premises. This is a detail many times overlooked with serious results. It has been our observation, the more painstaking the veterinarian is in looking after these details and securing and making out complete and legible reports, the more efficient is his other work and the better he gets along with stockmen.

Regulations Should Be Uniform and Practical

In administrative work it may be said: regulations must not be promulgated which cannot be enforced impartially and fairly. Regulations in the different states should be as uniform as geographic and climatic conditions will permit; and all regulations should be as practical as possible.

Atmospheric Conditions and Veterinary Practice*

By A. A. Leibold, D. V. M., Chicago, Ill. Associate Director, Zell-Straub Laboratories, Inc.

We have listened at this meeting to discussions of infectious diseases, sterility work, poultry diseases and their economic significance, diseases of swine, etc. These are timely topics for all of us and very important from an economic standpoint and I am sure we have profited a great deal by listening to them.

The subject I am about to take up is a little different from those generally considered, but there are a number of interesting facts that have caused me to write this paper. During recent years a number of new relations between atmospheric conditions and diseases of animals have been advanced, which are not only interesting, but also important. I do not wish to give the impression that the things I say here are my personal views, but rather that many are facts and many others are views advanced by high authorities, and which have been given serious consideration by many others.

Oxygen

I shall take up **oxygen** first, because it is the all vital element in the atmosphere. In water-free air, we find twenty-one per cent of the gaseous elements to be oxygen, which is very constant at certain times and altitudes, in spite of the great quantities that are constantly being consumed by animal life and oxidation processes. City air shows no appreciable difference from country air. During quiet breathing, a horse will remove about two and seven-tenths per cent of oxygen and a man about five per cent of oxygen from the air. When the air contains less than eleven per cent oxygen, dyspnea develops, and if there is less than seven per cent, death results. It is extremely rare that such deficiencies in oxygen occur, but it is sometimes seen when animals are crowded in closed freight cars and when sheep are crowded in a stable after shearing.

Ozone and Hydrogen Peroxid

Ozone, which is also called active oxygen, has a marked oxidization action. So has hydrogen peroxid, which is also found in the air, but which is weaker. They are too highly diluted in the atmosphere to be effective disinfectants, such as we know them to be in concentrated form. They do not occur in large cities, inhabited rooms and stables.

Carbonic Acid

The carbonic acid gas content in the outside air varies very little; the average in the country is three-tenths percent and in the city .37 percent.

As sources of carbonic acid there are: 1, respirations of man and animals; 2, decay and decomposition processes (manure, flesh, etc.); 3, the burning of light and fuel materials; 4, subterranean accumulations of carbonic acid which are connected with the outside world (caverns near Pyrmont, France; volcanic craters, etc.).

This gas does not affect health from the standpoint of doing injury until the inspired air contains more than four per cent; even five per cent can be withstood temporarily without harm. When more than eighteen per cent of the gas is present, death can occur at any moment, provided that the carbonic acid has accumulated at the expense of the oxygen, in which case, however, it is then the deficiency in oxygen and not the accumulation of carbonic acid that is the injurious factor. Gaertner has shown that rabbits would remain alive one-half hour in an atmosphere consisting of eighty per cent carbonic acid gas, but which had twenty per cent oxygen. Acute cases of poisoning by this gas are very rare, but chronic cases occur more frequently, as for instance, where the stable is poorly ventilated, and great quantities of decomposing manure are allowed to remain in the stable, giving off volumes of the gas all the time. Seegert has shown that the efficiency of animals, their general condition and their milk production become lowered as a result of such circumstances.

Atmospheric Humidity

The humidity or moisture in the air also plays an important part in the health of animals. Air at a temperature of 68.° F. will take up 17.18 grams of water, a little over an ounce per cubic yard, and will then be saturated. Very dry air only contains about five grams of water per cubic yard at this temperature. Regions close to large bodies of water, such as here in Chicago, and for miles

*Read before the Ill. State Vet. Med. Ass'n, Dec. 2, 1921.

in each direction, have a very moist atmosphere.

The drying action of the atmosphere, which is dependent on the amount of moisture in the air and on the air movements, partly influences the formation of dust and also the destruction of pathogenic microorganisms. Moisture tends to maintain life, whereas dryness causes its destruction.

A humidity of forty to seventy per cent seems to be the most favorable when the temperature is at 65 to 70.° F. Stable air is frequently extremely moist, (90 per cent humidity), especially during cold weather, when many people interfere with proper ventilation by closing all fissures and holes with rags, etc., to prevent the entrance of cold drafts of air. A prolonged stay in such air causes the animals to become soft, debilitated and exposes them to an increased possibility to infection, since pathogenic bacteria, etc., remain alive and infective for a longer time in places containing moist air. Sick animals also do not recover as readily under such conditions.

Dust

Dust is also quite important. Tissandier found that in the streets of Paris, 1 c.m. or slightly more than 1 cubic yard of air contained 6.23 mg. of dust or 9.6942 grains. He also found that in the open, the dust consisted of from two-thirds and three-fourths inorganic matter and one-third to one-fourth organic matter; in living rooms and stables there is more organic matter than inorganic. Among the organic there are: plant fibrils, pieces of hair, desquamated epithelium, starch grains, horse manure, etc.; among the inorganic there are: quartz splinters, lime and coal particles, minute particles of iron, silicic acid combinations, soot, sodium chloride crystals, etc. From among the living things there are: pollen grains, which according to Dunbar cause hay fever in man and horses at the time grasses and other plants blossom. In horses it appears as a severe catarrh of the upper respiratory tract, a mild fever, and the animal holds his head in a drawn-in manner. Recovery takes place in one to three days. Dust also contains spores of cryptogams, small plant seeds, molds and yeasts, bacteria, minute flagellated animals, infusoria, eggs of worms, etc. The assumption of Zurn and Spinola that eggs of lung worms gain entrance to the respiratory tract by means of the dried and powdered slime from swamps and puddles and then cause disease, is not a proved fact.

Experiments conducted by Saito showed that not even one-fourth of the dust in the air inspired through the nose had reached the lungs. In cases where a heavy dust is inhaled for a continued length of time, diseases due to the dust may occur, as inflammations of the lungs or catarrh of the respiratory tract. This is seen in horses which must go into limestone mills, mortar works and on dusty highways containing much lime; also among sheep which graze on dusty meadows or have to go on dusty streets; also where dusty forage is fed. Beckmann reports an exceptional instance where poisoning occurred from the inhalation of a chemical poison. There were eighteen horses of one squadron, which suffered from roaring as a result of inhaling sand containing lead, the sand having been obtained from a nearby old lead works and which was found to contain large quantities of lead oxide.

No bacteria pass into the air with the evaporation of fluids or of moist surfaces. Quietly expired air is free from bacteria. Drops of fluid resulting from coughing, snorting, etc., remain floating in the air for quite some time and are transported for varying distances, even when the air currents are very weak, as in rooms and stables.

The average number of germs in 1 cubic yard varies from 500 to 1,000, 100 to 200 of which are bacteria and the remainder molds and fungi. City air contains more germs than country air and when out on the ocean about 450 miles from land the air is free from germs. The streets of Paris were found to contain 4,000 germs for every cubic yard of air. No germs are found at an altitude of one mile or higher in winter, or 1.8 to 2.5 miles in summer. Petri found upwards of 34,000 bacteria and 7,000 fungi spores in 1 cubic yard of stable air. Fortunately most of the bacteria found in the air are harmless saprophytes, which quickly die when they are breathed into the lungs.

Pathogenic bacteria, outside of pus producing ones, have as yet not been found in the open or outside atmosphere under ordinary conditions. Pus germs are widely distributed. Diseases are only exceptionally transmitted by the air out in the open since the pathogenic germs are present only to a limited amount, becoming enormously diluted by the ever

(Continued on Page 55)

Cattle Practice

Edited by JOHN FRANCIS DE VINE, D. V. S.

Professor of Bovine Medicine, New York State Veterinary College at New York University, New York City.

Ante-Partum Paralysis

Paraplegia in Pregnant Animals a Common Complaint

This is rather a common ailment in the cow and is said to occur occasionally in the sheep and goat. Simple, uncomplicated ante-partum paralysis, due to pressure by a large foetus upon the locomotory organs occurring but a short time prior to parturition is ordinarily simple to handle and usually terminates within a day or two after parturition, with no apparent serious harm to the mother; but the complications are so numerous that it requires the utmost skill and often considerable observation to either detect or eliminate such complications. So much so, that in treating a cow in advanced pregnancy that is unable to rise or stand alone if assisted to her feet, the many conditions that may be the primary cause are of more consequence than the simple name under which paraplegia masquerades.

Has Many Causes

Some of the complications or conditions to be considered are **parturient paralysis** "milk fever," occurring as it does sometimes prior to parturition. This, of course, can be eliminated if the history is that the animal has been down for several hours or a day or two and still maintains a normal posture, the eye bright, the muzzle moist, the appetite keen, etc. It will not, however, be so simple to differentiate what is styled **"digestive paralysis."** Here the history may be that the case has been down for a day or two, lying in a normal position, the muzzle moist and rumination fairly constant. Unless the bowels are decidedly normal or the excessive weight of the uterus very apparent, it is not well to neglect udder inflation in these cases in conjunction with any medication that may seem indicated.

Fractures must always be considered. Any part of the pelvis, and particularly fracture of the inschiopubic symphasis. Occasionally fractures of any of the bones of the legs will keep the cow from rising, as will also **dislocation** of the coxo-femoral or sacro-iliac articulations, which are always difficult of diagnosis, requiring a most careful examination with an assistant to move the leg while the hand and the ear of the surgeon are given a severe test in the case of a heavily muscled animal.

If occasioned by **excessive weight of the uterus** it is not always easy to differentiate hydrops amnii which may cost the life of the mother before parturition takes place, from an extremely large foetus or twin pregnancy which are more benign in case the mother is well nourished and the termination of pregnancy not too distant. Parturition, however, does not always relieve this condition. It will depend somewhat upon how long the animal has been compelled to lie and how seriously the locomotary powers of the posterior limb have been interfered with. Also the character of birth may influence the results materially. The delivery of a large foetus may complicate the situation so as to produce a post-partum paralysis and so continue decubitus.

Occurrence

Ante-partum paralysis usually occurs ten to twenty days prior to the end of gestation. It not infrequently, however, occurs as long as two to six weeks. While our experience has been that the condition prevails far more frequently in half-starved animals, still it may and does occur in cows of the most dissimilar types and condition. It has even been observed in certain sections under the most varied sanitary and feeding conditions, and we occasionally see it occurring so frequently in certain seasons as to suggest an enzöotic.

Pathology

It seems probable that the true nature of this ailment has never been entirely solved, but it is supposed to be due to either pressure of an unusually large and heavy uterus upon the nerves and vessels of the posterior ex-

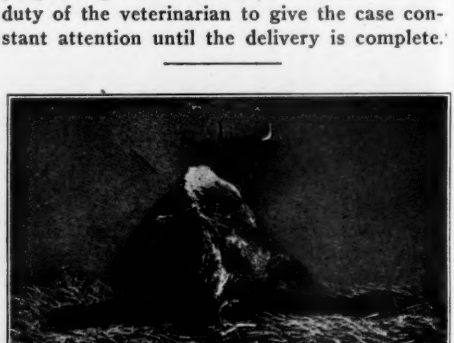
tremities, or muscle or nerve injury occasioned by a strain of these parts in the animal's effort to raise the unusual weight or to raise the normal weight under an unusual condition. Fleming states that in five or six cases there has been found on postmortem inspection infiltration of the dorso-lumbar and gluteal muscles and discoloration of the muscular fibres. The spinal canal has also contained a large quantity of serum and the membranes of the spinal cord are injected.

Symptoms

The symptoms are rather indefinite. The animal loses power of the posterior extremities either very suddenly or the gait may be unsteady for a day or two; in other cases the first manifestation is that the animal has great difficulty in rising, finally becoming unable to rise, with the result that the inability to rise is the only abnormal thing apparent. The animal lies on the sternum in an upright position with no apparent disturbance of any of the organs of digestion or elimination. Later, however, there is a serious tendency toward bloating and constipation.

Treatment

The treatment consists largely of good nursing and proper feeding. One of the first requisites is a comfortable large stall, either with a dirt floor or properly bedded, to lessen as much as possible the hazards of injury in case the animal struggles to regain her feet. Under good nursing, one of the important attentions is that the animal be frequently turned, but not as we would turn a horse by simply rolling her over on her back. A cow should never be turned this way as there are too many things that may go wrong in the abdominal cavity by such treatment. When there is help enough available all the animal's feet are to be tucked well under her and she should be shoved from side to side by pushing at the shoulder and raising on the hip, with one of the attendants placing his foot and knee against the opposite side well down under her so as to prevent her sliding as she is being pushed from the other side. Great care in her diet is very essential. Foods that ferment readily should be fed very sparingly. As to whether or not any drugs are indicated would depend upon the individual case. If the appetite is keen and the digestion not interfered with and all alimentary organs active, but little or no medication is necessary. The question of emptying the uterus naturally comes to one's mind, particularly if the animal is very uneasy and bed-sores are appearing or becoming severe enough in character to complicate conditions. It is not an easy matter to empty the uterus under these circumstances. In the first place, the ovary carrying the corpus luteum of pregnancy can rarely be reached, and if it can be, the removal of the corpus luteum does not always occasion dilation of the cervix at this period. Dilating the cervix and puncturing the membrane will usually excite uterine contraction; but the case must be carefully watched and the cervix dilated by force if need be so as to remove the foetus the first 24 or 48 hours before its death and decomposition results in metritis and defeats the intent. Consequently, if dilation of the cervix is practiced, if delivery of the foetus is not occasioned, or progressing after the first 24 hours, it is the duty of the veterinarian to give the case constant attention until the delivery is complete.



Attitude of a cow affected with bilateral sacro-iliac desmorrhexis. (Courtesy of Veterinary News.

DISLOCATION OF THE SACRO-ILIAC ARTICULATION
(Sacro-Iliac Desmorrhexis)

The practitioner meets with a no more perplexing situation than that of making a diagnosis in the recumbent position. While there are some characteristic attitudes such as that of milk fever and bilateral desmorrhexis of cows, in all other diseases in all of the species the "downer" is a veritable puzzle. All sick animals look very much alike in the recumbent position, whether it is a dog, horse, hog, sheep or cow. Brought into contact with a down patient the veterinarian is generally stumped completely until he can gather some incriminating information from the history or from

the struggles made in attempts to rise, and when these are unsuccessful he generally goes away disappointed. A very able teacher of general practice speaking on the subject of decumbency said "The first essential in a physical diagnosis is 'get 'em up'."

With these facts pretty well known we are pleased to reproduce the photograph of this pathognomonic freak which like the case of milk fever the veterinarian diagnoses at sight despite the recumbent position, and although this one is more rare than milk fever it is sometimes met in dairy districts where the balancing of feeds is ignored. When unilateral the clinical picture is less striking yet there is always the right angle position of the leg to incriminate the sacro-iliac articulation.

SOME VIRTUES OF MILK

1. Pellegra is caused by a diet deficient in certain elements. Milk added to such a diet cures this tropical disease.

2. Beri-beri is a disease of the nerves similar to pellegra. Milk cures it.

3. Inflammatory rheumatism has been cured by an entire milk diet. The milk washes away the poisons causing this ailment.

4. Milk cures sore eyes when same is caused by a deficient diet.

5. Milk adds actual inches to a man's stature. Japanese coolies were experimented upon and after being fed much milk, several inches were added to their height.

6. Milk plus fresh air and sunshine cures tuberculosis.

7. A milk diet exclusively will greatly reduce flesh.

8. A milk diet exclusively will add good solid flesh to a thin person.

9. Milk was one of the main foods upon which Jack Dempsey trained for his winning battle. It makes dependable brawn and muscle.

10. Milk is recognized as the greatest "protective food" known to man. The milk-eating man or woman has a resistance to disease not possessed by non-milk eaters.

11. The midshipmen at Annapolis are required to consume at least one quart of pure milk per day. No "sick days" are common here since milk has become the conditioner.

12. The Chinese, Japanese, and similar races who have never known the dairy cow are undersized and lack initiative and "pep." World leaders are invariably the milk-fed nations.

13. Miss Florence Busse of Iowa State College has divided milk into the following: For muscle, milk and cheese; for bones, milk, cottage cheese, and cheese; for energy, butter and cream; for body regulator, butterfat; for growth, milk, butter.

14. Milk prevents scurvy or cures it.

15. School children who are regular milk users complete the grades two years ahead of non-milk users, according to an experiment on 55,000 children in Los Angeles.

16. In all athletic competitions milk drinkers invariably win over non-milk drinkers.

17. Milk makes well developed tissues, smooth hair, bright eyes, and healthy color.

18. The lime in milk builds strong bones.

19. The vitamines in milk insure normal growth.

20. Children who do without milk are apt to be nervous, irritable, have indigestion, are restless at night, and take cold easily.

21. The old cow is the standard manufacturer of our all-important vitamines.

22. Stunted children or stunted men "come back" on a diet of milk.

23. Milk is beneficial in the treatment of boils, pimples, gastro-intestinal derangements, diseases of the respiratory passages, and as a preventive of bubonic plague. Its vitamines are the reason.

24. Milk prevents or cures rickets.

25. Artic explorers and sailors on long cruises who have run out of dairy foods and green stuff actually die of starvation, though other foods are to be had.

26. Mothers would not make much headway in feeding their babies and children large quantities of liver, kidneys, egg yolks and carrots. In milk we have the vitamine source as Nature intended it.

27. The best baker's bread to be bought today is now made with milk instead of water. This costs bakers thousands of dollars more a year, but it pays because the bread is tastier and keeps longer, as well as being better for us.

28. Milk makes fighters. Europe, in her turmoils of countless years ago, was always conquered by dairy-fed tribes. The weak races of the Far East and the South are examples of listless, easily conquered peoples who have never known the energy diets of the hardier northern peoples.

29. Babies die like flies every year because ignorant mothers attempt to improve upon

nature with milk substitutes. God made milk for babies.

30. Good cooks everywhere use milk instead of water in making their good dishes. Likewise they use butter instead of lard-like substitutes for the same reason. Nothing can compare with the milk taste.—Helen S. K. Willcox.

FIBROMYXOMA OF THE LIVER OF A COW

I am sending you a specimen of liver taken from a cow, showing symptoms of intestinal disorder before it died.

On postmortem examination, the liver showed sufficient lesions to practically cause the destruction of this organ. The lungs appeared normal.

Please inform me if any tubercle bacilli are present.—A. J. M., North Dakota.

Reply:—Although the gross appearance of the liver sent closely resembles that of tuberculosis, the tubercle bacilli was not found on microscopic examination, but the lesions clearly showed multiple fibromyxomata, which we believe was the cause of death in this case.

ENDOMETRITIS IN A COW

Under separate cover, I am sending you a section of liver and a tumor-like growth which I removed from the mesentery of a cow. I would like to have a bacteriological examination made of both. The animal, shortly before death, discharged several gallons of a dark, bloody, mucus from the rectum.

Upon postmortem examination, I found the liver was very soft and discolored and the gall bladder contained one and one-half quarts of thick, discolored bile. The postmortem lesions were about as follows:

The fore stomachs: Food was well digested and moist.

The abomasum showed a local congested area.

The small intestines as well as the large, showed a catarrhal inflammation.

The mesenteric lymph glands were normal. The mesentery contained several hard lumps with yellow centers. As there was no calcification I did not consider them tuberculous.

The cow had just freshened and retained afterbirth. The uterus, on postmortem examination, showed pronounced endometritis and some perimetritis. Personally, I do not believe that her death was due to the metritis but rather to a toxemia from some other source.

I would be glad to have your diagnosis if possible from my description.—E. A. S., Washington.

Reply:—Examination for tuberculosis proved negative, after keeping the cultures alive the six weeks necessary for tuberculosis investigation. These facts and the graphic symptoms presented in your letter would indicate that the subject died from the toxemia of endometritis.

HEMORRHAGIC SEPTICEMIA ORGANISMS FOUND

I will send you today the blood from a cow which died very suddenly this afternoon. She acted very nervous, ran right into objects, frothed at the mouth and soon fell to the ground, she would then strike with her feet, swing her head around and bellow as if in pain.

I held a postmortem examination, but found practically nothing. I looked at heart, bladder, trachea, etc., for petechia, but found only a few on bladder and heart.

Two weeks ago the owner of this cow lost two calves within 20 minutes of each other. They showed exactly the same symptoms.

The pastures are the same as they have been all summer.

Could this be hemorrhage septicemia?—C. J. H., Iowa.

REPLY—Your diagnosis is correct. There was no difficulty in finding many typical bipolar organisms of hemorrhagic septicemia in the blood samples.

In deliberating over cases of suspected foreign body in the rumen veterinarians should always think about binder twine accumulations which are sometimes found postmortem to be the offending agent. Ruminants ingest twine with straw and ensilage. The practice of allowing the twine to be cut up with the sheaves in filling silos is discontinued by many dairymen because of this fact.

The manual exploration of the internal genitalia by which the veterinarian is able to determine the cause of sterility in so many cases and through which he is so often able to execute corrective treatment, is often discredited because the diagnostician and not the method is at fault. In all of this so-called sterility work, heaps of practice and lots of patience are required before a very high degree of proficiency is attained.

Swine Practice

Edited by A. T. KINSLEY, M. S., D. V. S.

Goitre in Swine

Goitre, bronchiocele or struma, in swine, is a condition in which there is a non-inflammatory and non-neoplastic enlargement and improper functioning of the thyroid gland.

Geographic Influences

Goitre is more or less prevalent in the north central and north west portion of the United States and in Canada. The losses of pigs in Montana has been estimated at 100,000 annually. The disease has exacted a heavy toll from the swine industry in the Columbia river valley in the state of Washington. The losses of pigs due to goitre is apparently on the increase at least in some sections of the country. The areas, so-called "goitrous districts" in which this condition occurs is usually definitely defined. The drainage basin of the Yellowstone, the lower Missouri and the Musselshell with some of their tributaries are the areas in which the losses due to goitre are most extensive in Montana. In some instances sows that produced goitrogenous pigs have been moved less than a mile away from these districts and produced normal pigs at the next farrowing, and when the same sow is returned to the original premises, she would again produce goitrogenous pigs. As a rule, only a portion of the sows on a farm, will produce goitrogenous pigs, although in some extreme cases 95 per cent of the sows produce diseased pigs. In many instances sows will produce goitrogenous pigs in the spring and although the sows are maintained on the same farm and in the same lots they produce normal pigs in the fall farrowing.

In the majority and possibly in all cases the sow that produces affected pigs also has goitre.

The Etiology

The cause of goitre in pigs is a deficiency of iodin. The iodin deficiency is intimately associated with an increased size and altered function of the thyroid gland. The presence of iodin in the thyroid glands was recognized by Bauman in 1896. The iodin content of the thyroid is diminished by goitre in pigs. Goitre in swine is similar to simple goitre in the human and is characterized by a relatively uniform enlargement of the thyroid gland. Although the thyroid gland of a pig having goitre is larger than the normal thyroid, the total iodin content of the entire gland is less than that of a normal gland. The specific cause of goitre is a deficiency in iodin but the reason is problematic and goitre development under such surroundings is difficult to explain. Thus, according to Welch of Montana, "A rancher one year may lose 95 per cent of his pigs and the next year with the same breeding stock, the same ranch conditions, and feed and water from the same source, raise an entirely normal herd." It is not uncommon in goitrogenous areas for one-half of the sows kept in the same pen and given the same feed and water to produce normal pigs and the other half produce pigs affected with goitre. The nature and condition of feed appears to have little if any influence on the causation of goitre. Abortion in sows and goitre are distinct, although goitre in utero may cause abortion.

Symptoms

Symptoms of goitre in sows may not be observed because the thickness of the neck masks the swelling of enlarged thyroids. Goitre in pigs is characterized by hairlessness, more or less complete over the entire body, excepting around the nose, eyes and neck. Pigs affected with goitre are generally a little larger than normal. The head and neck are especially large. The skin is sleek and the region of the head and neck frequently wrinkled. Pigs affected with goitre are sometimes still-born. If farrowed alive, they seldom survive more than a few hours. In some instances a portion of a litter may be normal. The hoofs are undeveloped or thin and fragile. The thyroid glands are found to be from 2 to 4 times the normal size and they are dark in color. The

enlargement of the gland will be found proportional to the degree of hairlessness, fragility of hoofs and size of the head and neck.

Treatment

Treatment is of no value yet prevention is possible. Affected pigs are invariably born of affected sows. The iodin deficiency may be due to insufficient iodin in the food stuff or it may be a result of improper functioning of the thyroid gland. Dried normal thyroid gland tissue contains approximately 2 per cent of iodin and the dried thyroid gland tissue from a pig affected with goitre contains no iodin, or not more than a trace of it.

Experiments at various experiment stations indicate that most feeds contain sufficient iodin for normal metabolism, but that such feeds do not prevent goitre. By administering one ounce of potassium iodid in each 300 pounds of feed of the sow, goitre can be prevented, providing it is given during the entire gestation period.

The prevention of goitre in pigs is important, as the number of inquiries received shows it is very prevalent. We would suggest that veterinarians confer with breeders in their respective communities and arrange to prevent a malady that causes such great losses.

DELAYED PARTURITION

An interesting case was recently reported, concerning a valuable sow, in which the period of gestation was exceedingly long. The history of the case is as follows:

The sow was bred on May 28th. She was a valuable, big type Poland China and immediately after breeding she was so placed that future service would be absolutely impossible, according to the statement of the owner. One hundred days after breeding, this sow was placed in a farrowing pen as she had the appearance that on schedule time she would farrow. After keeping the sow in the farrowing pen for some three weeks, the owner believed that something irregular had happened and ceased his vigilance in the watch for farrowing. Forty-two days after the date for farrowing according to the breeding, the sow farrowed 10 living pigs, the period of gestation being 157 days.

Or, Was Fertilization Delayed

Is it possible that the male cells from the original breeding may have remained in the genital organs of the sow for a period of six weeks before fertilizing the ova? The length of time would indicate that the sow had passed through two heat periods after the first breeding. These periods were not observed by the owner, although he personally observed this animal every day.

The above is an interesting case and VETERINARY MEDICINE will be glad to hear whether practitioners have seen similar incidents.

PICA IN SWINE

Pica or depraved appetite is a condition characterized by a tendency of the affected animal to consume other substances than food. The condition may also be characterized in some animals by a desire to lick foreign substances, such as posts, boards, etc. Depraved appetite is probably not as common in swine as it is in some other animals. Some cases have recently been observed that were rather interesting. The following is quoted from a letter recently received:

Herd May Be Affected

"I have under my care a herd of hogs that have acquired the habit of eating wood and tearing fence posts. After administering tankage, minerals, wood ashes and coal, they did not stop this practice. Any suggestions from you will be greatly appreciated."

Cause Often Obscure

The usual causes of aberration of the appetite are improper rations or disease. The condition in the majority of instances is of dietary origin and is usually readily overcome when a proper diet is provided. In some cases, the cause of the condition is obscure. It may have its origin from indigestion, from a diseased condition of the teeth, catarrhal gastritis and perhaps some other disturbances may be associated with aberration of the appetite. A few cases of pica have been found in sows that were depleted by maintaining a large litter of pigs.

The Treatment

The treatment for depravity of appetite is not difficult in the majority of cases, providing the cause can be identified and removed. If the disturbance is due to an improper diet, the disease usually disappears within a few days by providing the proper rations. In those cases in which the disease is associated with dyspepsia, irregularity or diseased condition of the teeth, the correction of the disease or diseased condition will overcome the abnormal appetite.

Sows suckling large litters of pigs that become associated with an unnatural appetite can

usually be relieved by supplying excessive quantities of feeds, rich in protein, and minerals.

VETERINARY MEDICINE will be very glad to have suggestions from practitioners relative to this condition.

The "tyranny of environment" has always done a great deal of harm to the hog industry. Once this brute is housed, yarded and fed in obedience to the common laws of hygiene much of the hog-man's trouble will cease.

HOG CHOLERA

I have mailed to your laboratory a sample of blood from the ear of a Poland-China boar. These hogs were farrowed in February and March, 1921, and were vaccinated in May with serum and virus.

The herd went along fine and some of them were exhibited at the fairs where they became sick. On their return a boar and a sow died. The owner thought it was a serum break. At first they showed symptoms of thoracic mixed infection. I vaccinated them every three days until all symptoms had subsided and they were on feed and feeling fine.

A month later this client held a sale, a few days after which five boars that were sold were reported sick. They lay down a good deal, had no appetite, wabbled slightly in their gait, temperature from 104 to 106.° F. However, none of them died, and the rest of the herd in the sale that had been left on the owner's premises to be bred seem perfectly well. They eat, show no temperature and hustle alone as usual. One boar that was not called for at once appeared sick and a diagnosis of cholera made. One hundred cubic centimeters of serum and two of virus were given, but I have not heard particulars as to the outcome.

If this is a contagious disease, why should not some of those kept at home show it? They ran together before the sale and were penned in the same pavilion during the sale, sold in the same ring, and run on the same beautifully green fields. It is a nice clean swine farm. None of the animals have died.

If a blood test can be made, please report as soon as possible—J. R. C., Illinois.

REPLY:—Although the bacteriological examination did not show any pathogenic organisms, the description of this disease would seem to indicate that you are dealing with either hog cholera or hemorrhagic septicemia.

We would advise an absolute change of environment and feed.

NECROTIC ENTERITIS (?)

I am sending, by separate mail specimens of the intestines and lung of a pig for microscopic examination.

This pig was one from a herd of about 80 head, weighing from 40 pounds to 125 pounds. For the past month some of them have been showing the following symptoms.

They lose flesh, thump, cough, eat with the herd until the last day or two before dying and sometimes never refuse feed. Some of them have a clay colored diarrhea and others do not show much diarrhea.

On postmortem examination, a few worms were found and the intestines were inflammed and thickened, especially the small ones. The large intestines show necrotic areas with a tough, black membrane that pulled off. The lungs were normal; lymph glands except those of mesentery, kidney, spleen and bladder were normal. These pigs were pastured on alfalfa and blue grass and were fed twice a day on slop made of fresh, ground barley, oats, corn, middlings, tankage and buttermilk. About seven or eight pigs have died during the last month.

They were treated with worm capsules followed by copper sulphate, charcoal, sodium hyposulphate and salt twice a day for a week. What treatment would you suggest?—G. S. P., Ohio.

Reply:—The bacteriological examination of the specimens sent showed streptococci. The intestinal lesions were produced by the combination of the bipolaris and paratyphoid organisms. We would recommend autogenous bacterins for this particular herd, good sanitation and very careful feeding.

It would be well to look into the source of the buttermilk that is being fed to this herd and to the care taken of it between its source and the slop trough.

"The cleaning and disinfection of all railroad yards and stock yards during the last outbreak of foot and mouth disease was, I believe, largely responsible for the small amount of hog-cholera that followed that period. Cleaning up of all public yards, pens and stock-cars would be of great value in the prevention of diseases of livestock."—Pres. T. J. Foster, Illinois State Vet. Med. Ass'n.

Purely Practical

There is no successful treatment for swamp fever.—Schalk.

Whenever a cow refuses to eat during convalescence turn her out.—DeVine.

The fact that a pig hung up by the hind legs does not squeal makes this form of restraint desirable for many surgical operations.

To cure flat warts not easily removed surgically try a saturated solution of potassium bichromate once daily for a few days.

When you fear the stomach tube has passed into the respiratory tract, shake the trachea at the upper third when the tube is buried eighteen inches. Its end will bump against the wall perceptibly as the trachea is shaken to and fro.—Anon.

Murphey's operation for bubonocele in boars that are wanted as breeders, has been performed with success by several veterinarians since preconized by the author and although not often indicated in a general practice, it is well to be reminded that such an operation is possible.

Veterinarians who have followed Stranaud's recommendation to give lots of enforced exercise to the laminitis cases find this a much less serious disease than formally. Jugular venesection, aconite internally, cold swabs to the feet, plenty of forced exercise and a good, well bedded box stall now cures cases that formerly died or became permanently worthless from foot deformations.

A fountain syringe is better for washing out the stomach of colic cases than the pump. A canvas bucket with a capacity of five gallons, entubed with a hose equipped with a slip-over end is filled with warm water and drawn to the ceiling with a small rope passed over a beam or held up by means of ice-tongs snapped to a beam. An ordinary rubber tube-snap is used to open and close the hose as required.—Crowe.

A stubborn epistaxis can always be helped and often promptly arrested by tracheotomy.

The stubborn cow that will not rise may generally be made to change her mind by jabbing her briskly, but not brutally, along the back with a fork.—DeVine.

Inoculation with live bacteria as virulent as possible now seems to be the rage in abortion control (a case of get it over with at once) just as the Europeans do with foot and mouth disease.

Cantharides ointment or cantharol are much better blisters for horses than biniodid of mercury ointments. The latter especially when spread over a considerable surface is very painful and possesses no compensatory virtue.

Resection of the ligament of the ergot underneath the ergot itself has often proved a cure for the lameness of ringbone despite the fact that in principle it is a quackish procedure of the lowest order.

A recent thoroughpin that is not too tense often responds to repeated aspirations, blisters and rest. Subcutaneous injections of Lugol's solution may hasten matters somewhat.

For ulcerative keratitis of dogs try potassium permanganate 1 to 2000. Warm the solution and instill it into the eye twice a day. In less than two weeks a complete cure may be expected.

Sixty-five feet of half-inch rope is the only casting apparatus needed in a veterinary practice. Light to carry about, always available, perfectly reliable for every possible purpose, never found wanting in any detail and very cheap, are only a few of the good things one can say about it.

The method should be demonstrated at every veterinary association clinic so that all harnesses, trappings and hopples may soon be thrown into the scrap heap, where they have always belonged.

Veterinary Surgery

Edited by L. A. MERILLAT, V.S.

A New Plantar Tenotomy

The division of the flexor tendons in the metacarpal region for volar flexions has not always given the good results the practitioner would desire. There has been some difficulty found in keeping the leg from breaking down while the tendons are healing and the resulting connecting medium always remained enlarged, and was sensitive for an indefinite period. Often it was found necessary to apply blisters and even actual cautery for months before the sensitiveness disappeared. Then no matter how carefully the operation and the complicated after-care were carried out the subject was often permanently and conspicuously blemished with a hardened condition of the region. The patient, in addition to the disease that caused the deformity, thereafter had a veritable "wooden leg." When performed upon colts the results were somewhat more encouraging but upon mature horses these ugly sequelae were almost sure to supervene. Then again the convalescent period was always too long in view of the value of the crippled subject.

History.

Already in 1913 and 1914 we had adopted a new method that was giving much better results but the war interrupted our experiments, and as a consequence no public report of them was ever made. The operation which we call "new" is the artifice of a Roumanian veterinarian, C. Podasca, who practiced it in the clinics of the Veterinary High School of Bucarest already in 1911. It was during this year that the author published a report of his procedure in Arhiva Veterinara (March and April 1911).

Technique

The operation varies from the old one in that the two tendons (the perforans and perforatus) are each severed at different points. The author divides the perforans at the middle of the upper third of the metatarsal region and the perforatus at the union of the middle and lower thirds. After following this method we found it expedient to reverse this order of things and at once had still better results than with the original Podasca operation, the chief advantage being that of more easily avoiding the synovials.

General Scheme of Operation

Fig. 1—Podasca's operation: (a) Proximal end of severed perforans; (b) Distal stump of perforatus.

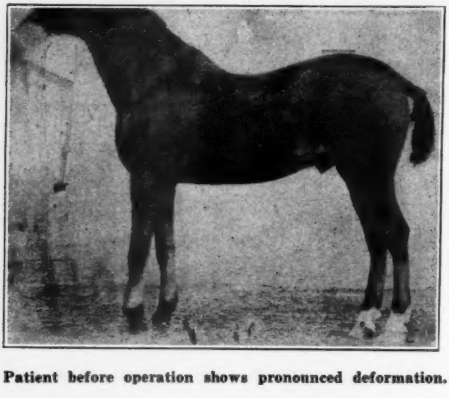
Fig. 2—(a) Location we select for division of perforatus and check ligament; (b) Place we divide perforans. (Courtesy of the Author.)

To do a neat and correct operation the patient should be under profound chloroform anaesthesia, otherwise the essential degree of immobilization is impossible to obtain. The

tenetome should have a slender and very sharp blade.

The leg is clipped and disinfected and the two seats are shaved and painted with iodine in addition. When the subject has been cast and anaesthetized and the seats re-disinfected with iodine, the sterilized tenetome is passed between the two tendons at the point above indicated and then turned against the perforatus. The division is effected by pulling on the foot with the carpus as a fulcrum. The tenetome is held in the closed hand as the thumb gauges its course and presses the tendon against it.

The perforans is then divided in much the same manner, but here care must be taken to pass the tenetome under the blood vessels and nerves and not over them. To avoid these the blade is kept close to the tendon and passed downward at an angle that will direct the point under the upper group of vessels and nerves and then before pushing it deep enough to sever the undermost group the tendon is cut partly off until the knife stands at a right angle. The remainder of the tendon is snapped off as above directed, that is by



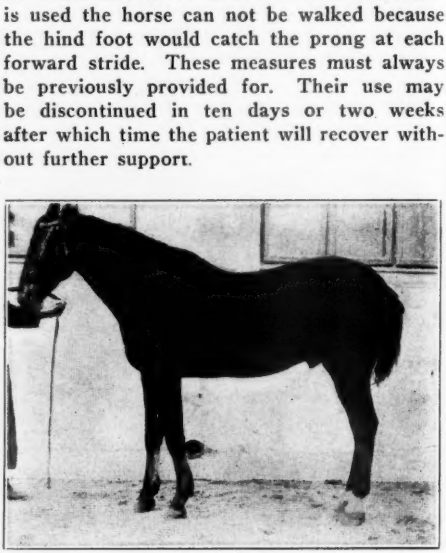
Patient before operation shows pronounced deformation.

stretching the tendon and directing the knife's course with the thumb. The adhesions are then broken down until the skeletal angles are normal.

Post-operative Dressing and Care

For a young colt a good stiff bandaging may be all the support required. The bandaging material must however be fortified with leather or similar material that will prevent the toe from turning upward and of course these dressings must cover the whole metacarpal and digital region.

In adults a special shoe and leg brace is required to fortify the bandages, yet we have had good results by merely applying a bar shoe with a prong extending backward along the floor five to six inches. When the latter is used the horse can not be walked because the hind foot would catch the prong at each forward stride. These measures must always be previously provided for. Their use may be discontinued in ten days or two weeks after which time the patient will recover without further support.



....Patient six months after operation shows but slight abnormality.

It is, however, essential that an animal so operated upon be given a long period of rest, in order that the sensitiveness of the scar tissue be allowed to disappear in the shortest possible time. To this end it is advisable to shoe the horse with a shoe having high heel calks and no toe calk. In addition it is well to apply a good sharp cantharides blister covering the entire region of the tendon very soon after the support has been removed.

AMPUTATION OF SUPERNUMERARY TEATS

A client of mine has a valuable Holstein heifer, three years old, due to freshen for the first time in March. The animal has two extra teats growing out from the sides of the two anterior teats. The owner wishes me to remove them.

Will you kindly outline a satisfactory method for this procedure?—F. C. S., New York.

REPLY BY DR. FERGUSON: Operate at least two weeks before the glands start to secrete milk. Restrain the animal, preferably by casting and

stretching; wash the teats with soap and water, dry with 5% sol. tinct. iodine; apply a rubber band to the base of the large teat, tight enough to control the hemorrhage. Have an assistant stretch the main teat by pulling on its free end. With your left finger or a forcep fastened to the end of the small teat to be removed stretch it away from the main one and with a sharp pair of curved scissors cut it off at its base in such a manner as to leave as small a skin wound as possible and divide the duct close to the main teat duct. With the small point of your thermo-cautery, cherry red heat, cauterize the divided duct and balance of the wound lightly. Remove the other small teat in the same manner.

Release the animal, put her in a clean stall and remove the rubber bands in an hour by cutting them with the scissors.

If the wound becomes soiled apply 50% sol. of iodine daily, otherwise no after treatment is necessary. The results should be 100% satisfactory.

ANTI-BLEAT OPERATION

I would like very much to obtain information on the surgical procedure used for the purpose of preventing bleating of goats.—A. H. B., Iowa.

REPLY: The bleat of a goat may be modified very materially by excision of both vocal cords.

The subject is tied safely in the dorsal recumbent position, the laryngeal region shaved and disinfected, anesthetized with a four per cent solution of novocain, an incision made into the larynx as in the operation for roaring in horses, a retractor is inserted and the vocal cords, first one and then the other, picked up with the tumor forceps and resected from before backwards.

There is not much danger from complications.

Line firing is the best treatment for spavin we yet have. The affected hock should be fired all around except over a small space at the flexion surface. Puncture firing of the exostosis itself is generally a disappointment, while line firing the whole tarsal region, followed by a cantharides blister and at least five weeks of absolute rest often will cure the lameness. When this fails cunean tenotomy should be performed.

UNILATERAL THYROIDECTOMY IN LAMBS

Unilateral thyroidectomy is practiced in Italy to improve the quality of the fleece of sheep. Lambs from which one thyroid gland is removed develop a wool that is more silky, more supple, more elastic and less resistant, all of which are qualities the wool industry appreciates.

CANKER OF THE FOOT OF HORSES

This stubborn disease of the feet of horses responds best to pressure applied by means of a wadding of oakum arranged evenly in wads over the affected parts and then driven down tightly with a strong plate of bendible iron fixed beneath the wed of the shoe. Before applying the pressure the granulations are well exposed by carefully paring away all undermined horn and then smoothing them up with caustics of which pure formalin is thought by American veterinarians to be the best. It is also helpful to pepper the whole affected zone with boric acid to prevent putrefaction of the discharges and eschar before applying the pressure. The dressing should be changed once a day for the first week then once in two or three days thereafter. The one objection to the treatment is the pain it produces at first, each time the pressure is applied, and difficulty of securing the patient to reapply the dressing.

INTRAVENEOUS INJECTIONS

In the administration of intraveneous injections into the jugular vein Moussu recommends that the needle be of small caliber and always directed upward. The object of injecting liquids against the blood current and in a small stream is to assure a better dilution in the blood before the solution reached the endocardia. There is danger in delivering an unmixed concentrated solution direct to the heart.

The intraveneous injection of iodine dissolved in oil has been found to give better results than the administration of iodid of potassium per os. It causes no discomfort, is less likely to produce iodism and has a more lasting effect than the potassium salt Iodine thus given was still found in the blood of animals three weeks after it was injected into the jugular.

Origin of the Vinsot Operating Apparatus For Horses

COURTESY OF BULLETIN VETERINAIRE.

One morning in the year 1403, as the cruel sire Phraizodin was returning to his fortress, his horse was stricken with an injury that prevented it from advancing a single step. He sent for the veterinarian of the country, Jehan Tibrostosine, medicus veterinarus, reputed to be skillful in the treatment and care of sick animals. "Cure my horse" commanded the wicked Seignior, "if not, I will confine you with the oubliettes of my chateau."

Alas, the beast was severely wounded, necessitating that its body be turned on its back, a difficult thing to execute in the absence of a proper apparatus, but the good doctor, without losing any time, placed a long lance between its legs, tied them and the head securely to it and then gave the ends into the hands of eight of Phraizodin's most robust soldiers.

They then dexterously turned the horse over with this improvised pivot as easily as if it were a goslin to be dressed. Then Jehan Tibrostosine cut, recut, sewed, unsewed and resewed the flesh and skin and dressed the wound so well that the beast formerly ready to yield up its soul, now walked off gaily and with an expression of thankfulness to its benefactor.

The results were so satisfactory that the sire Phraizodin in spite of his wickedness, congratulated his veterinarian, besides he recompensed him for his good care with large brilliant pieces of gold. Jehan Tibrostosine made an extended report to his veterinary society on the form of the apparatus he improvised and named it Pattenlairum Equum for which the society presented him with a beautiful silver medal.

Laboratory Diagnosis

Edited by C. A. ZELL, D. V. M.

DIRECTIONS FOR PACKING SPECIMENS FOR LABORATORY EXAMINATION

1. Gross anatomical lesions, where a bacteriological examination is desired, are best sent carefully wrapped in a cloth wet in a 2 to 10 per cent solution of farmalin, and properly boxed. For small specimens use the weaker solution. For large specimens, the stronger solution.
2. Chickens and other fowl should have the feathers removed, be wrapped in a cloth saturated with 10 percent formalin solution and sent to the laboratory whole and unopened.
3. Specimens of tumors or other tissue, not for bacteriological examination, may be sent in a 4 per-cent formalin solution.
4. Specimens of blood, pus and body fluids for bacteriological examination or for serum tests should be drawn aseptically and sent in sterile containers (small bottles boiled and cooled), airtight. Such specimens should reach the laboratory quickly. If sent by parcel post they should be sent special delivery. It is best to send blood, pus and body fluids by first class mail, special delivery. If the quantity of pus is small, dilute it with sterile normal salt solution to prevent drying. Sterile containers will be supplied on request.

Quantitative chemical analyses cannot be furnished free of charge owing to the large amount of work often involved, but tests for the presence of the more common poisons will be made without charge.

Where an immediate reply either by wire or letter is requested, a nominal charge will be made. In such cases, the inquirer will be billed direct by the laboratory.

In all cases where laboratory examination is requested the history and symptoms of the case as fully as they may be obtained, and a description of the post-mortem findings if an autopsy has been made must accompany the request, the object being not only to enable the laboratory technician to render the greatest service possible, but also to make the report of value to readers who have not seen the case.

Send all correspondence and specimens to Dr. C. A. Zell, Room 1611, Masonic Temple, Chicago, Ill.

Hemorrhagic Septicemia in a Flock of Seventeen Hundred Geese

I am sending you a goose for a laboratory diagnosis. The history of the outbreak is as follows:

The owner informed me that he was having serious losses in his flock, 200 having died during the week out of a total of 1,700. "They are dying faster than at first," the owner said.

As I had no experience with geese or any other fowl for that matter I suggested that after making an examination of the flock a carcass be sent to a laboratory for investigation. To this he consented, saying "There must be something done as the entire flock will soon be lost at the present death rate."

History

The geese had been bought from the farmers of the surrounding country as feeders for the holiday trade, and were being fed on hilly ground but without any shelter. The weather had, however, been perfectly dry, and there had never been any casualties during previous years in flocks handled in the same manner. The flock had been moved to another field a day or two before the time of my examination, but this had made no change for the better in the death rate.

Antemortem Examination

On examination I found the following situation: Water was supplied in troughs to which it was brought from an adjacent pond. The feed consisted principally of corn to which bran was added later. Both seemed to be of good quality. In walking among them I found one dead and two squatting down with the heads to the ground, dying. They made no effort to escape nor struggle when handled. All of those that fell sick showed the same symptoms, and all those not showing this serious condition were lively, moving rapidly about when approached, showing no signs of weakness, no drooping, no trailing of the wings nor any inclination to lag behind. In short they were all either apparently well or else seriously sick. While holding an autopsy on two of them, four more sickened and died.

Postmortem Lesions Found

The crop was empty and the esophagus slimy with mucous. A few grains of corn and a greenish substance was found in the gizzard. The rest of the content was grit and a dry material. The mucous membrane, of the intestines, especially that of the ceca and cloaca,

was more or less inflamed, peppered with petechial hemorrhages, and studded here and there with reddened, swollen areas. The contents of the duodenum were greenish in color and that of the other intestines frothy and mucoid. The ceca was full of a green, pulpy material. The feathers around the vent were clean, showing no signs of diarrhea.

The pericardium and heart were spotted with petechial and ecchymotic hemorrhages, including the endocardium. The kidneys were dark and probably enlarged. The liver was mottled and somewhat larger than normal.

Treatment

I gave them permanganate of potash and phenol-sulphonates in the drinking water without, however, expecting to accomplish much by the treatment.

Please wire me treatment at once.—H. W. S., Illinois.

Reply:—Your client is in the trouble that one invites by agglomerating into one flock geese gathered together from so many different sources. It is doubtful if such an enterprise will ever be permanently successful. While several years might by chance pass without any calamity, sooner or later an outbreak of some contagion is inevitable. If your client is bent on feeding geese he does not himself raise, as an occupation, we would advise vaccination with hemorrhagic septicemia bacterins but especially the strict quarantining for a considerable time before newly purchased geese are placed in the feeding flock. The only hope of saving this flock is through isolation of the sick, proper disposition of the carcasses, disinfection of everything contaminated and inoculation with hemorrhagic septicemia bacterins, since in the bacteriological examination typical bipolar organisms were found in exceptionally large numbers.

We thank the querist for the completeness of the description, as well as for bringing so important a matter before our readers.

A FATAL GOSLING DISEASE

Am sending under separate cover a gosling, special delivery. Kindly examine it. Thirty-five out of sixty in this flock have died, not all at once, but over a period of several weeks.

Symptoms: Mainly paralysis, also convulsions, some diarrhea. They lay sprawled out, helpless, for several days before death.

The feed consisted of corn and oats ground together. The sanitary conditions are quite good. There is no pond or water and the runs are on dry upland. There were several cases of the same ailment on the place last year, but by giving intestinal antiseptics the trouble ended. I tried the same treatment on the flock this year, but with no success. I have made no postmortem examinations.—E. B., Wisconsin.

REPLY: In our examination we were unable to find any bipolar organisms but found Gram negative coli-like bacilli which would indicate that the trouble arises from virulent organisms of the colon group. We are studying this organism and will have more to report at an early date. It would be helpful if we could have other specimens, especially one or two of the sick goslings.

MULTIPLE EPITHELIOMA

I was called to diagnose and treat a nine-year-old dun colored rural mare gelding, weighing about 1100 pounds, that had been developing tumors for several months.

In May it was turned out to pasture in the hope of thus effecting a cure.

These tumors have slowly enlarged. They vary in shape, some being nearly round and others oblong. They are from a half inch to an inch deep. The round ones vary from one to three inches and one-half in diameter and the elongated ones from one to three inches in width to from two to nine inches in length.

They are located under the abdomen and on the outside of the hind legs from the hock to the croup. There is one about one and one-fourth inches in width and six inches long on the tendo-acchillis and one on the front leg extending from two inches above the fetlock to two inches above the carpal joints, which is from one to one and one-half inches in thickness. There are about a dozen on each leg and hip and twenty underneath the body. They are quite hard and somewhat sensitive on palpation. The tumors seem to involve both skin and subcutaneous tissue.

The horse seems to be feeling well and is in no way disabled. Appetite, pulse and respiration normal, but there is a slight loss of flesh.

I incised one of these tumors and under separate cover, am sending you a specimen. Kindly let me know your findings.—J. S., Ohio.

REPLY:—Our laboratory diagnosed these tumors as multiple epitheliomas. There is no similarity, either clinically or microscopically

to botryomycosis, in fact multiple tumors of this character are not rare in animals. Our recollection is that they have a predilection for light chestnut and dun colored horses. We believe your patient is incurable.

SWAMP FEVER

I am sending by parcel post a specimen of blood from a two-year-old filly. During the summer quite a number of horses in this district have suffered from a disease showing the following symptoms:

The animal is noticed to be duller than usual, and in a few days does not feed well, although in some cases the appetite remains good until the later stages of the disease. The gait is stiff, the legs and abdomen edematous and the hind quarters weak. The pulse is fast and its character changes as the disease progresses. A jugular pulse is present in the last stages. Temperature ranges from 103.5 to 106° F. Mucous membranes are at first injected; later they become bloodless. The loss of flesh is rapid. Fleshy animals are reduced to a swaying skeleton in ten days.

The disease is highly fatal, running its course in fourteen to twenty-one days. Those that recover are of little use, having no endurance. In other words, they are weak a year after they get well. The disease apparently is contagious

Postmortem examination reveals blood thin and watery. Heart muscle flabby, liver and kidneys soft, intestines empty or containing a few bots. Parasites are common in this province.

The animal from which the specimen of blood was taken is feeding well and has been sick about eight days. The abdomen and legs are edematous, pulse 100 per minute, temperature 104.° F., and it is losing flesh rapidly. The gait is quite unsteady. This is the second animal to become infected on this farm in the last two months. His neighbor had one infected in July and it succeeded in getting into his pasture and in a month after, he had one similarly infected, and both animals died.

The animals on this farm have good well water and are fed on oat sheaves. Those that are healthy are running out on the stubble fields and look well.

I have used several medicinal remedies without success. The disease is commonly called swamp fever by veterinarians and stock men. The disease seems to confine its activity to equines during the hot weather. No cases have been observed during the winter months. —W. F. T., Sask.

REPLY:—The bacteriological examination of the blood sample sent showed no pathogenic organisms.

It appears you are describing swamp fever, which being caused by filtrable virus, cannot be detected by microscopic examination, culture methods, nor by inoculation of laboratory animals. Swamp fever is incurable.

SUSPECTED POISONING OF A BOAR

Under separate cover, I am sending you a portion of the contents of the stomach of a yearling boar found dead this morning.

Last night he appeared normal, eating his feed, which consisted of corn, middlings and a small amount of tankage. On postmortem examination, we found about one-third of the gastric mucosa greatly inflamed and there was an excess of bile. Everything else appeared normal.

I would like to have this examined for the presence of some of the more common poisons and the results reported to me direct.—M. E. H., Ohio.

REPLY:—The chemical analysis shows no evidence of the more common poisons. There are so many things that can kill a boar it would seem advisable to seek some other cause.

NECROBACILLOSIS CONFIRMED

I am sending the lungs of a 100 pound shoat with the hope of getting assistance in the treatment of the balance of the herd on this farm.

I have vaccinated on this farm for several years for cholera. For the last three or four years these shoats seem to contract pneumonia which seems to be swine plague, some in the acute and some in the chronic form. I have given most of them one dose and others two doses of hemorrhagic septicemia vaccine with very good results, but some this fall were not benefited.

The lungs of the pig I am expressing were removed after the pig was destroyed and bled. This shoat was sick two weeks, had a cough, thumpy, fever and constipation. The postmortem examination revealed no signs of cholera. There were no petechia to be found in the kidneys, spleen, heart or intestinal mucosa. The lymph glands appeared to be normal. The intestines show no ulcers nor but-

tons, although the floor of the bladder showed a little cystitis.

There seems to be a pyogenic infection in the lung. Pus can be squeezed out as you will observe in the specimen sent. Kindly advise me of your findings.—R. F. H., Illinois.

REPLY:—Our laboratory reports that the specimen sent showed no indication of hemorrhagic septicemia, but there were a number of streptococci and diplococci and bacilli necrophorus present. None of the signs of hog cholera were present.

The symptoms and the laboratory findings justify your diagnosis of necrobacillosis, as the organisms found are always present in specimens from animals dead from this disease.

CYSTIC-GLANDULAR HYPERTROPHY OF THE INTESTINES OF A PUP

We are sending under separate cover a specimen of large intestine of female Boston terrier, seven months old. We did not see this animal alive, but from all postmortem indications and history, it would seem that death was caused by acute indigestion.

What we cannot understand are numerous spots on the inner lining of the bowels. Maybe you can help us out.—A. L. B., Ohio.

REPLY: The specimen of intestines submitted shows cystic glandular hypertrophy without any signs of malignancy. The character of the spots can not be determined until further preparation on account of the discoloration and shrinking caused by the strong alcohol in which the specimen was preserved.

CHEMICAL POISONS SELDOM FOUND IN STOMACH CONTENTS OF DOGS

I am forwarding to you today, the stomach of a six-month-old collie dog. This animal became sluggish about 4 o'clock in the afternoon and about 6 o'clock was thrown off his feet by a spasm of the muscles.

I was called at 6:30 the same evening, and found him on his side, and unable to rise, and very nervous. The least noise seemed to throw him into violent spasms.

I advised the owner that from the symptoms, I suspected acute gastritis or strychnin poisoning. He then informed me that the cat and dog always ate together and suggested looking at the cat, and to our surprise, we found her stiff and cold near the furnace.

The dog died an hour after my arrival, and to satisfy my own curiosity, I would like an analysis made for strychnin poisoning of the stomach.—J. M. O'N., Michigan.

REPLY:—The search for poisons in the stomach contents of dogs is generally in vain on account of vomition and rapid absorption. The material submitted did not show the presence of strychnin, but the circumstances attending the death of these two animals and the symptoms described in the dog leave no doubt that both of them died from strychnin poisoning. It is seldom worth while to send stomach contents of dogs to a chemist for analysis because dogs generally vomit the poison-containing content and that which has killed has been absorbed and is therefore not available for examination.

HEMORRHAGIC SEPTICEMIA

I am sending you specimens of blood from a five-month-old calf, from lungs, liver and heart. This farmer has lost some calves each year from the same infection, and has been able to check it with hemorrhagic septicemia bacterins each year until this year, and has lost four calves so far.

Symptoms:—The patient gradually weakens, fever 103 to 106.° F., cough and emaciation. The disease runs a course of from one to two weeks.

Febrifuges seem to have no effect, in fact, all medication seems to be useless.

On postmortem examination hemorrhagic spots are found in the skin; the lungs are in a catarrhal condition, the lower lobes show spotted areas; the heart is enlarged showing petechia on the surface; the cardiac sac is filled with a fibrous exudate showing adhesions to pleura; the liver is enlarged and congested; the bowels through the entire tract show venous engorgement and the lymphatics are congested throughout the body.

Please examine these specimens of blood to see if you can locate any bacteria that could cause this affection.—G. C. F., Illinois.

REPLY:—Although the specimens submitted are contaminated, the bacteriological examination showed the presence of bipolar organisms and thus confirms your suspicion of hemorrhagic septicemia.

A few drenches of hard cider is said to be a perfect cure for jaundice including the pruritis that often accompanies that condition.

Abstracts of Foreign Literature

Edited by A. EICHHORN, D.V.S.

VACCINATION AGAINST BLACKLEG WITH BACTERIA (3)

The immunization of cattle against blackleg with bacteria free filtrates is being employed to a large extent both in Switzerland and Japan. The results in Japan are supposed to be so favorable that they have entirely ceased the production of spore containing vaccines. The author reports the vaccination with filtrate of 4,800 cattle in the notorious blackleg districts of Simmental and Thun. A single injection was made subcutaneously in the neck. None of the animals showed a visible reaction. Only three of the vaccinated animals died from natural blackleg within the year. Accordingly the losses amounted to only 0.06 per cent. For comparative purposes in the same year, 22,600 animals were vaccinated with muscle virus. The results of this vaccination were 12 deaths from inoculation blackleg and 59 deaths from blackleg infection in the field.

Free Filtrates Most Effective

The vaccination with bacteria free filtrates, therefore, appears to be more effective and the favorable results indicate that in Switzerland at least the losses from blackleg are produced by the classical blackleg bacillus. The author also mentions that according to the suggestion of Uchimura other anaerobes might also be utilized in the preparation of bacteria-free filtrates. A product obtained in such a manner would also give good results in other infections similating blackleg.

EXAMINATION OF THE FECES IN VARIOUS DISEASES OF CATTLE (4)

The investigations embraced a macroscopical, microscopical, physical and chemical examination of the feces. The reaction of feces of cattle even in disease are almost invariably alkaline. In chronic intestinal catarrh and chronic indigestion they are mostly of a very thin consistence with a watery contents of 91.5 per cent. In chronic indigestion the feces contain a great amount of course, unruminated and undigested food particles. The mucin contents is considerably increased in chronic intestinal catarrh. Albumen is found mostly in chronic intestinal catarrh. It may also occur in acute intestinal catarrh, in malignant catarrhal fever and in traumatic gastro-diaphragmatic inflammation.

Blood coloring matter may occur in gastro-diaphragmatic inflammation and in rare cases also in chronic intestinal catarrh. In paralysis of the rumen and in cases of constipation the feces are usually hard and crumbling and the water contents is only about 70 per cent.

In cases of lead poisoning the feces invariably contain blood coloring matter, they are of very dark color, of a fetid putrid odor and are coated with a tenacious, blackish red slimy covering. The lead as a rule cannot be demonstrated in the feces. It is in all probability being absorbed through the intestinal tract.

THE PROBLEM OF ACUTE LAMINITIS (9)

The author presents scientific conceptions on the nature of laminitis. He does not consider the affection as a local condition of the hoof, but as a general constitutional affection. He aims to support his view by his postmortem observations on animals which died from laminitis. He always observed on such autopsies a discoloration and crumbling condition of the liver and hypertrophy of the heart. He found these conditions even in animals which died eight hours from the onset of the disease. According to his views, these pathological changes cannot be considered as the result of a congestion of the sensitive lamina, but they are suggestive of an intoxication.

Laminitis resulting from feeding as explained by the author, is due to an incomplete splitting of the proteins. The foreign proteins are harmful to the liver and are supposed to induce anaphylactic manifestations. If laminitis results after fatiguing work, the author attributes this to an exhaustion of the glycogen reserves in the body and to an excessive formation of certain acids such as lactic acids, etc. He further is of the opinion that laminitis may also develop from an excessive utilization

of fats and to an incomplete combustion of the same; in the same way at such times the carbohydrates are not sufficiently oxidized.

TETANUS IN SHEEP-RECOVERY (7)

An owner himself undertook the castration of seven bucks by ligation of the scrotum and subsequent cutting. In twelve days there appeared a stiffness in locomotion. Two bucks were so severely affected that they had to be slaughtered before the veterinarian was called. Of the five bucks which were still alive at the time of the examination, one laid flat on the ground with extended stiff legs. The musculature was hard as a board. At short intervals muscular convulsions appeared over the entire body during which the eyes were also drawn back into the orbid. These animals could no longer be made to rise and were slaughtered. Two other sheep walked with great difficulty; the extremities were rigid and extended but they still could take some food. The musculature, especially of the hind legs, was also very hard. In the two remaining sheep the tetanic infections was somewhat slighter. These two animals were given each 500 units of tetanus antitoxin subcutaneously. In two days marked improvement was observed. The same dose was repeated. The castration wound was thoroughly painted with iodine. The improvement continued and after eighteen days all signs of the disease disappeared. The two animals which were not given the antitoxin had to be slaughtered.

VACCINATION AGAINST STRANGLES IN HORSES (8)

The author discusses the various methods of vaccination against strangles. He himself prepared a vaccine which is being tested at the Remount Depots of the Belgian Army. The vaccine consists of a two-day old strangles streptococcic culture in bouillon which is heated to 56 degrees for one-half hour. Living bacilli should not be contained therein; which is controlled by cultural tests. Three inoculations are made at eight-day intervals; 5 cc is given at the first injection and 10 cc is administered on the two subsequent injections. A stronger local reaction follows the first injection than on the two subsequent vaccinations. The rise in temperature hardly ever exceeds 1 degree C. The local and thermic reaction is more marked in young horses than in older animals. The affected or convalescent animals show no local reaction. Vaccinated horses have not developed the disease in localities where strangles was prevalent. The vaccine is also supposed to possess curative action. Repeated subcutaneous injection of 10 cc of the vaccine into horses affected with the disease has, according to the author, a favorable influence upon its course.

BACILLARY CARRIERS IN CHICKEN CHOLERA (1)

Chicken cholera is usually introduced with newly purchased infected birds. If the outbreak of the disease cannot be explained, it is generally assumed that bacillary carriers are responsible for its appearance. This has also been substantiated by Ostertag, Ackermann, Hertel and Muller. The author recently observed a case in which a rooster became infected in an outbreak in the fall of 1918. The bacilli, however, in this case could not produce the typical septicemia as the bird was immunized by vaccination and only a localized suppurating process developed on the leg. In March of 1919 the dried encapsulated swelling opened probably as a result of traumatic influences which permitted the escape of pus containing virulent bacteria. The author attributes the outbreak in the flock to this infection, whereas the rooster remained well throughout the disease.

DOURINE CARRIERS (6)

Dourine was very extensive during the war in Algeria. The investigations of the authors showed that animals which clinically were entirely recovered and which were regularly used for hard work and from which the blood even in doses of several liters failed to be infectious, suddenly broke down and disclosed trypanosomes in the peripheral blood circulation. Such instances were observed to occur at intervals from fourteen months to three and one-half years. A stallion affected with dourine, therefore, may in spite of an apparent recovery become dangerous. In the face of our present knowledge, therefore, it appears indicated to exclude from breeding every stallion affected with dourine. If the animal is in poor nutritive condition it should be destroyed. If with proper treatment a general good condition is attained the animal should be castrated.

3. Prof. Graub (Schweiz. Arch. f. Tierh. V. 63, No. 3).
4. Hilderbrand Inaug. Dessert. Hanover.
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7. K. Neuwierth, Deutschoster Tier. Woch. V. 3, No. 5.
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1. Prof. Manniger, Allatory, Lapok, 1921.
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Parasitology

Edited by MAURICE C. HALL, Ph.D., D.V.M.

Eosinophilia and Parasitism

Occurrence

Eosinophilia is a blood condition commonly associated with many forms of parasitism. It also occurs in a large number of pathological conditions, aside from parasitic conditions. It occurs in splenomegalous luekemia, sarcoma, osteomyelitis, osteomalacia, chlorosis, secondary anemia following infection, extirpation of the spine, chronic splenic tumors, bronchial asthma, emphysema, pemphigus, eczema, psoriasis, urticarias, leprosy, herpes zoster, burns, vagotonia, exposure to X-rays, and in skin diseases associated with toxic agents. The eosinophile count sometimes rises in scarlet fever, acute rheumatism, malaria, syphilis, gonorrhea and in ovarian diseases with the exception of cancer. Eosinophilia is physiologic in childhood, the average count being 1 to 2 per cent above that of the normal adult. It is sometimes stated that there is a racial eosinophilia, and a count of 15 to 20 per cent among the natives of South China cited as an instance, but in view of the prevalent parasitism in China, this instance must be regarded with suspicion.

Nature of Eosinophiles

The nature of the eosinophiles has been studied by Weinberg and Séguin, who reach the following conclusions: The eosinophiles possess phagocytic properties, engulfing bacteria, protozoa and erythrocytes, but these properties are more distinctly manifested against microbes than against cells. Experiments show that the eosinophiles are capable of digesting the engulfed bacteria, protozoa and red cells, the process taking place in vitro as well as in vivo. When the eosinophiles are abundant, they may play an important role in protecting an organism against infection. In contact with hydatid fluid, eosinophiles absorb this fluid and it loses its antigen properties, a thing which may be demonstrated by a fixation reaction. The absorption takes place equally well at incubator or refrigerator temperatures, but more rapidly in the case of eosinophiles from immunized animals than in the case of those from fresh animals. In brief, whereas the neutrophiles primarily protect the organism against bacteria, the eosinophiles are especially adapted to the neutralization of certain toxic substances, and it is probable that having absorbed these toxic substnces the eosinophiles elaborate specific antibodies.

Relationship

Although eosinophilia is commonly present in cases of infestation with animal parasites, there is no simple direct relation between the degree of eosinophilia and the degree of parasitic infestation. The relationship is complicated by the degree of reaction to the parasitic toxins on the part of the host animal. We may surmise that an animal with high resistance will show a higher eosinophile count than an animal with low resistance and that in animals with high resistance the eosinophile count will rise higher with a larger number of parasites present than with a smaller number present. However, we may expect a variation in the eosinophile count of the same animal from time to time, depending on various physiological conditions, we may expect a difference in the eosinophile count between recent infestations and old infestation and between larval parasites in the tissues and adults in the lumen of tubes or cavities, and we know that some parasites, such as trichinae, with an eosinophilia as high as 86 per cent in some cases, will give a higher eosinophilia than other parasites, and that some host species react to a given parasite in a manner different from that of other host species. In view of these things it seems evident that we must know many things not yet known before we can definitely determine much about the parasitic conditions present on the basis of the eosinophilia present. At this time we know very little beyond the fact that eosinophilia may be indicative of parasitism and that this is one of the many conditions which must be taken into consideration in determining the

reason for the presence of an ascertained eosinophilia.

In a recent article, Wright has given some very interesting findings which show the difficulty at present of correlating the degree of eosinophilia with the degree of parasitism. In the case of one horse, the animal showed an eosnophilia of 0.2 per cent in May and of 9.4 a little over two months later. This animal showed an eosinophilia of 7 in October and of 1.2 in December, shortly before postmortem examination of the animal. On postmortem the animal apparently had a comparatively light infestation, as horses go, having 1 bot, 3 Setaria and a few Strongyles and Cylicostomes. This case may be taken as illustrating the numerous factors present as complications in the study of eosinophilia.

The Eosinophile Count

The light eosinophile count in May might have been correlated with a light infestation due to the loss of many parasites during the winter and perhaps with the presence of an old infestation with adult parasites in the lumen of tubes and cavities. The high eosinophile count near the end of July might have been correlated with fresh infestation picked up during the spring and with the presence of larval worms in the tissues, including the blood. The fall in the eosinophile count in December might have been correlated with the decreasing number of parasites present with the cessation of reinfestation in early winter. But such conclusions would be open to the apparent objection that the eosinophiles were 3.4 per cent on June 14, dropped to 1.4 five days later, rose to 9.2 six days after this, dropped to 2 on October 8 and rose to 7 on October 27. Wright notes that one horse averaged 17.2 per cent for 6 months and showed a relatively small number of parasites postmortem, whereas another horse showing 13 per cent eosinophilia had a large number of parasites postmortem. One case of interest is that of an animal showing no eosinophilia and no parasites postmortem. Wright cites Burnett as authority for the statement that the percentages of eosinophiles are about the same for all animals except cattle, and notes that Dimmock and Thompson found the average for cattle to be 13.15. In connection with the differences manifested by various hosts towards the same parasite, it may be noted that rats do not show the same eosinophilia in trichinosis that man shows.

Role of External Parasites

Not only internal parasites but also some external parasites may caues eosinophilia. In the sarcoptic scabies of man the eosinophilia may reach 19 per cent. In severe cases of sarcoptic mange in the dog, Welch found an eosinophilia of 6 to 30 per cent; in light cases the eosinophile count was 1 to 4 per cent. In severe cases of demodectic mange in the dog, Welch found an eosinophile count of 4 to 14 per cent; in light cases the count was 1 to 3 per cent. Welch concludes that the eosinophilia depends more on the intensity of the dermatitis than on the extent and nature of the disease. Strickler finds that louse infestation in man does not produce an eosinophilia, as scabies and grain itch do. This finding may be explained in the light of Weinberg and Séguin's work as due to a lack of absorption of toxic material in cases of pediculosis. The lice live on the surface of the skin and under ordinary conditions the amount of louse secretions and excretions absorbed by the host skin is probably very small. Apparently there is little or no inoculation of secretions in biting which might lead to a reaction manifested by eosinophilia. On the other hand, mange and scab mites burrow in the skin or become encrusted in the drying exudate which follows their attacks, and their excretions and secretions are readily absorbed under these conditions. They are also believed to inoculate certain secretions with biting, and these may be the cause of the characteristic itch. Powdered mites and extracts of mites will produce this itch. It would appear probable that the eosinophilia would be greater in the case of such deep burrowing mites as Sarcoptes than in the case of the more superficial varieties such as Psoroptes and Chorioptes.

Localized Form

Aside from the generalized eosinophilia manifested by the differential blood count in cases of parasitism, there is a localized eosinophilia in the case of certain parasites in the tissues or attached to tissues at fixed points. Moore and Fitch in this country have published a study of such localized eosinophilia in the case of nodules resembling those of glanders in the lungs of horses, but actually due to parasites. These parasitic nodules show a variable localized eosinophilia, a feature of value in differentiating them from nodules due to glanders. Many similar cases of localized eosinophilia in connection with parasites have been reported.

Can Be Experimentally Produced

Both generalized and localized eosinophilia can be produced by the injection of parasitic material, extracts, etc. Calmida found that the injection of extracts of the dog tapeworms, Dipylidium caninum and Multiceps multiceps, into the circulation of rabbits was followed by an eosinophilia beginning in 6 to 8 hours, and that when a capillary tube containing one of these extracts was placed in the subcutaneous tissue of the rabbit the tube was found at the end of 24 hours to contain leucocytes of which the greater number were eosinophiles. Williams and Bentz digested trichinous pork with artificial gastric juice and introduced the dried residue into dogs, cats and frogs with the production of localized eosinophilia in a large number of cases. Vallilo injected extract of Strongylus vulgaris into the peritoneal cavity of guinea pigs and after 12 hours found an eosinophilia of 19.1 per cent in the blood and of 15.45 per cent in the peritoneal exudate; eosinophiles were present at the site of injection, especially in the subcutis. Panizza found that when a dog was injected with an extract of Ascaris lumbricoides the eosinophiles increased from 0.7 per cent to 12.8 per cent, the eosinophilia being proportional to the amount of extract injected; an extract of Cysticercus pisiformis injected into rabbits increased the eosinophiles to 35.3 per cent. Hadwen has reported that when the body juices of the ox warble are injected into a susceptible animal, a swelling forms, and smears from this swelling some hours later will show an eosinophilia; when a drop of the warble fluids were instilled into a steer's eye and smears made from the discharge some hours later, the cells present in the discharge were practically all eosinophiles.

Experiments on the Cause of Eosinophilia

Ahl and Schittenhelm have conducted experiments to determine the nature of the products causing eosinophilia. They found that animals sensitized to albumen, fibrin and globin showed some eosinophilia when reinjected with these products. Nucleoprotein, histon and caviar peptone produced a high eosinophilia, while such end-products as nucleic acid and protamin gave almost no increase in eosinophiles.

Weinberg and Séguin found in some cases where the percentage of eosinophiles was high in the general circulation that local experimental injections lowered the percentage in the general circulation. Also, that if the general percentage was low, local injections only caused slight accumulation of eosinophiles. Apparently it takes some time for the production of eosinophiles as they have to come from the marrow. They state that if the percentage of eosinophiles is low, the polynuclear neutrophiles will sometimes take their place. Dr. Seymour Hadwin suggests that perhaps this is only temporary until eosinophiles have been produced. Hadwin found in many cases of swamp fever that eosinophiles were very low or else wanting in the general circulation. Wright confirms this. As many of the cases of swamp fever which Ransom examined had many worms and also had many local accumulations of eosinophiles surrounding them, the above observations seem to be confirmed.

TRAUMATIC ACTION OF THE STRONGYLES OF THE HORSE

A study of the buccal capsule of the strongylus equinus and the lesions produced by it in the colon and caecum of horses disclosed that the parasites are usually securely fixed tc the mucous membrane. They are usually close together and often grouped in veritable colonies.

The lesions observed are of four types:

1. Small wounds or pricks: These are caused by the mode of fixation of the parasite that aspirates the mucous membrane into its buccal capsule. When the parasite is detached it leaves a little papulary elevation of the mucous membrane which proves to be manifestly altered when seen under the microscope. The gland tubules have disappeared and are replaced by a homogenous mass that shows necrosis and intense infiltration with cosinophile leucocytes. In the center of the necrotic portion the eosinophiles lose their proper character and coelesce.

2. Edematous tumefactions: These are observed where the parasites are numerous. The tissues are infiltrated and their cells altered. The arterioles are dilated and the eosinophilic infiltration is very pronounced. The edematous swellings of the caecal wall is very extensive, sometimes over a yard long.

3. Small or Large Ulcerations: These ensue as the necrosis sloughs away, and the healing depends upon the virulence of the microbes introduced by the strongyles; if inoffensive, the lesions heal rapidly without leaving any cicatrix.

The microscopic examination reveals a complete destruction of the mucous membrane and the submucous tissue, inflated with leucocytes and many microorganisms.

4. Mucous and submucous nodules: These enclose larvae. The small ones have a diameter of 250 microns and are found immediately under the epithelium. The larger ones are submucous and can attain the size of a hazel nut. They bulge into the lumen of the intestine and sometimes show the small orifice through which the larvae escape. (Parodi et Widakwich. Riv. Zoo., August, 1919.)

GASTROPHILUS

As the old impression that the gastrophilus is perfectly harmless to horses is not entertained today it would seem that the practitioner's duty is to recommend both preventive and curative measures in all horses whose stomachs are thought to harbor the larvae in harmful numbers. Unthriftiness of obscure origin, perverted appetite, gastric disorders and mysterious loss of flesh are among the conditions which would lead to the suspicion that bot larvae might be the cause, especially in districts where the fly abounds and after seasons during which they were numerous, as shown by observations on the many ova deposited on the hairs.

A parasite that is capable of collecting in such large numbers as to actually cause obstruction or to monopolize great areas of the gastric mucous membrane can no longer, in the light the present knowledge of parasitism, be passed off as a triviality.

It is not desirable to go back to or even approach the days of the old empiric who diagnosed bots in all mysterious complaints for the ostensible reason of preparing a safe retreat at the postmortem, but it is very desirable that we study its syndrome with the view of selecting the harmful from the harmless infestations.

Rural practitioners who hold postmortems frequently, are often struck with the large size of the area carpeted with larvae and although taught the contrary, he often finds it hard to pass the incident as entirely without consequence in the disease and death of the patient. And justly so, because in spite of the fact that we are not prepared just now to incriminate them directly there is due and sufficient reason to suspect them as secondary agencies in the cause of serious enteric disorders. A parasite occurring in such large numbers and sojourning so long in such an important organ as the horse's stomach is not a trivial matter.

If they sometimes do no harm they do occasionally destroy life. What disorders result from them between these two extremes remains to be demonstrated, but that none other occur is hardly reasonable.

Among the many harmful cases of which there are many on record are the two reported in recent journals, namely, the case of Wright (Nevada) J. A. V. M. A., June, 1921, a four-year-old gelding that emaciated to the point of death and on postmortem examination showed over a thousand larvae as the only explanation; and that of Vion (France) Rec. de Med. Vet. in which the larvae completely blocked the esophagus with fatal results.

The proper treatment according to Wright and others is bisulphid of carbon, which was recommended by Perroneito many years ago. It is given on an empty stomach and followed a few hours later with either linseed oil or aloes as a purgative. The dose is from one to one and one-half drams given in a capsule.

MOLD FOLLOWS CORN EAR WORM; CAUSES ANIMAL SICKNESS

Moldy corn, due to the injury of corn ear worm, may cause sickness and death to animals, according to H. A. Gossard, entomologist, Ohio Experiment Station.

Careful inspection of ears and fodder should be made this season and the moldy seed discarded.

Owing to the long growing season this year the corn ear worm has been doing unusual damage. Reports show that the worm has even attacked greenhouse crops and has also been found destructive in flower gardens and alfalfa fields.

The habitat of the corn ear worm is further south than Ohio, but it encroaches upon northern crops during long seasons.

Sweet corn is its favorite crop, but it also attacks tobacco, tomatoes, peas, beans, asparagus and sometimes vetch, clover or alfalfa.

Entomoligists believe that in the event of colder weather this winter the brood of the corn ear worm will be partly destroyed so that its damage will be much less next year.

Canine Feline and Avian Practice

The Silver Fox Industry

By J. P. Duffus

The rapid growth of the silver fox industry in the United States during the last few years has opened up a new field for the veterinarian since these animals are now raised in large numbers and are receptive to all of the diseases of dogs and more susceptible to them than the domestic canine.

During the first days of fox breeding, while ranches were few and their population less concentrated, the need of sanitation was less important. In fact, there were then several successfully managed ranches at which no sanitary precaution had ever been taken, but as the industry increased some of the ranchers found that by using more care and more cleanliness in feeding and in quarters they were able to reduce very materially their losses in young foxes which theretofore had been considerable, and as the price of skins increased the more prolific production became more important, and more attention was then paid to scientific feeding and management under the various conditions.

Routine Followed by Most Breeders.

The adult foxes before being mated are dosed with one of the standard worm medicines and if hook-worm is suspected the animal is dosed for these also, but as hook-worm treatment is more dangerous, this is attended to by the veterinarian. Thymol and carbon tetrachlorid are the remedies usually resorted to for this purpose. The old foxes usually receive no other medical treatment except such as may be required for isolated cases or individual ailments.

When the litter is born and has reached the age of twenty-two days they are given a small dose for worms, since it has been found that round worms are so common in the pups that it is better to give a preventive treatment than to wait until there are clinical manifestations or until some harm has already resulted. A month later if there is any sign of worms in any of them a half dose of anthelmintic is given, and this usually rids them of any remaining worms.

Prevention of Rickets Important.

As the young fox grows older it gains in size so rapidly that he must be watched for rickets which in foxes arise from various causes. Too rich a food may sometimes weaken the legs quite as likely as that deficient in bone building elements. Some ranchers feed a special diet to the mother for no other purpose than to prevent rickets, and this is believed to be a good practice. After the pups are three months old they are generally as hardy as the mother if properly fed, but the pens must be disinfected by spraying with proper agents and the isles sprinkled with lime to prevent contagions from being carried about by the feet of the keepers.

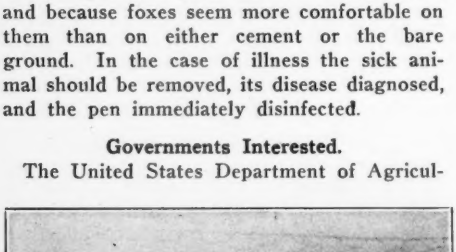
Corner of a Cement Floored Fox Pen.

The Floors.

Many ranchers prefer a floored pen to facilitate the destruction of larvae of worms and other parasites that are difficult to handle on the ground. A good practice is to make a cement floor and then cover it over with ground and then to remove the earth and replace it from time to time. A board floor is however preferable, because it can be scrubbed and because foxes seem more comfortable on them than on either cement or the bare ground. In the case of illness the sick animal should be removed, its disease diagnosed, and the pen immediately disinfected.

Governments Interested.

The United States Department of Agriculture has established an experimental farm where the carcasses of animals dying from any cause may be sent for diagnosis and report. It will also send a representative on request to diagnose any trouble that may occur. On Prince Edward Island, where the industry has developed into an important industry with pelt sales of more than a million dollars annually, the Canadian Government has appointed a specialist who devotes his entire attention to the diagnosis and treatment of fox diseases. The ranchers usually supply the animals the specialist requires to make his investigations and thus several important discoveries have been made in the treatment of the diseases to which the fox is subject. The doctor's work is recognized to such a point that the United States Department of Agriculture accepts his health certificates for the importation of foxes into the United States.



Board Floored Fox Pens Under Construction.

The inspection consists of a careful external examination and a microscopic examination of the feces.

Veterinarians Should Help.

As distemper has appeared on several ranches some of the keepers have been vaccinating the young with a distemper vaccine or serum and some good seems to have resulted therefrom. In several instances the losses from this trouble has been greatly reduced although it never has been a heavy one anywhere.

There is, however, a great field in the industry for experimental work and for veterinarians located near the fox ranches. The ranchers without exception appreciate them and are always willing to co-operate. All things considered, there seems to be nothing in sight that would appear to threaten the solidity of the industry.

The losses from adults are few and far between. They seem to stand any change of climate well, and in shipping the losses are very few.

The Industry Profitable.

The hardiness of the silver fox, together with its productivity, makes the industry profitable in this country even if the present market price of the pelts decreases. It is particularly a safe enterprise because the losses from death of animals invariably come at a season when the pelt is prime or nearly so, and thus gives a relative carcass value above that of other animals.

Breeding stock of proven pelt value can be procured and one of the largest ranchers has established his own sales department in New York.

CANKER OF THE EAR

By first soaking the auditory canal well with a four percent solution of novocain, examinations and treatments of the deep portion of the external ear are very materially facilitated.

Chlorozene solution is the simplest treatment. After anesthetizing the canal with novocain, the dried discharges and wax are wiped out and the canal packed loosely with cotton soaked in chlorozene solution. The treatment should be repeated frequently since at first the patient will throw the pledgets out by shaking its head as soon as the effect of the anesthetic subsides.

Brumley recommends that the discharges and wax be wiped out with ether which is a better solvent for the cerumen than aqueous solutions.

TWO CASES OF TUBERCULOSIS IN CATS

The authors described two cases of tuberculosis in cats. The bovine type of tubercle bacillus was found to be the cause. They conclude from their examinations that tuberculosis in cats is much more frequent than is indicated by the statistics. It constitutes a great menace to man and animals as infected cats may readily disseminate the tubercle bacillus either through the air passages or with the excrements.—(Schweiz. Arch. f. Tierh. Vol. 63, No. 2.)

ETIOLOGY OF CANINE DISTEMPER

The cause of the disease we call canine distemper is still a mystery. The only incontestable feature about it is its great contagiosity. There are no pathognomonic symptoms by which it can be differentiated from other diseases of young dogs.

In 1905, Carre, and a year or two later, Lignieres, announced that they had found it was caused by a filtrable virus associated with other organisms, chief among which is the pasteurella canis. Later, Eiguene reported having produced it experimentally by inoculating pups with a filtrate of the discharges, with defibrinated blood and with peritoneal fluid and that he had produced an immunity with a serum made by successive inoculations.

In 1909 Kregenow, of Berlin, contradicted all of this with a group of experiments that seemed to prove that the specific agents are a number of different microbes found in the discharges from the mucous membranes.

In 1910, 1912 and 1913, Ferry and Torrey of this country, and McGowan of Scotland, were thought for a time to have settled the entire controversy by the discovery of the bacillus bronchisepticus, with which they were able to produce a disease to which both naturally and artificially infected dogs become immune. Ferry proved the specificity of the B. bronchisepticus by agglutination with the serum of dogs infected naturally as well as artificially, leaving little doubt that the question of cause had been definitely settled.

Then, in the report of the International Veterinary Congress in 1914, Carre confessed complete failure to corroborate the findings of the American authors, after having been unable to find the B. bronchisepticus in a single case, but announced that the coccus of Mathis was constant in the cutaneous pustules. He deplored Ferry's flat-footed repudiation of the filtrable virus on the grounds that three other researchers of unquestionable merit had produced the disease with filtrates, and offered as a plausible explanation of the discrepancy, that they may have been working with an entirely different disease, leaving the question of cause as far from solution as ever.

Today, in the light of all that is known, the therapist must still work out his own salvation from the hypothesis that the cause is probably a filtrable virus plus the secondary invaders found constantly in the pathological issues.

ROUP

By parcel post I am sending you a chicken from an infected flock, for diagnosis.

Several weeks ago, the owner called me to see this flock and I diagnosed the disease as roup. He had lost about 25 chickens. They were discharging from the nostrils and some few had swollen eyes and canker in mouth and throat. I treated the birds with a roup bacterin, giving one cubic centimeter dose, and swabbing nostrils and throat with tincture of iodin. I advised the owner to clean up the quarters and put them in a sanitary condition, which he did.

The chickens continued to die, and I again was called, but this time the discharge from the nostrils and canker in mouth and throat had disappeared. The chickens seemed to improve, but later I was called again, as more fatalities were occurring.

The chickens showed discharge from the nostrils, but no canker in mouth and throat. The birds would sit around and droop the head as in limberneck or botulism.

During the course of treatment, they were fed on mash in which sulphocarbolates were added.

Please advise me as to diagnosis at once.—N. McN., Ohio.

Reply:—While the examination of the specimen mentioned showed some bipolar organisms of hemorrhagic septicemia, there were also some ordinary roup organisms shown, which, coupled with the symptoms of the disease you describe, would indicate an outbreak of roup probably complicated in some cases with hemorrhagic septicemia. The bacillus botulinus was not found.

You are dealing with a mixed infection that would call for a mixed bacterin treatment, but above all, do not omit the hygiene and sanitation that must be enforced in dealing with an outbreak of this kind. Bacterins and other medication are all subordinate to a proper cleaning up system, in handling such flocks.

AVIAN HEMORRHAGIC SEPTICEMIA

Under separate cover, I am sending you two live, sick chickens for examination. These were taken from a flock of about 350. About 75 out of the flock have died within the past two months.

They get lame, do not eat or drink much, act droopy, and some of them have diarrhea. They get very thin and finally die.—E. E. R., Illinois.

Reply:—This flock of birds is affected with hemorrhagic septicemia as shown by our examination of one of the chickens submitted. The other one was free from bipolar organisms so far as we could determine.

You are undoubtedly dealing with a chronic form of the disease that might be materially cut short by proper isolation of the sick as soon as they are found, a good cleaning up of the coops and the use of bacterins.

PARTIAL PARALYSIS FOLLOWING DISTEMPER IN A DOG

I have a valuable setter pup which I purchased in Illinois, five months ago. Immediately upon receiving him I gave him distemper serum, because I see a great deal of canine distemper here.

After about two months, he showed symptoms of distemper; respiration hurried, temperature up, for four to six days, then he improved. After one month or so, the symptoms were repeated, evacuations becoming very offensive. Some days there was diarrhea, on others the reverse. This continued for two weeks or so, then he had fits every four to five hours for four or five days. I finally stopped them by giving bromides.

Then I gave him a dose of oil of male fern, 2 grains, followed by oil. Eighteen tape worms were removed by this treatment. From that time, or one week before he showed signs of inability to stand, he would wabble from side to side, backwards and forwards, fall on his side and had to try hard before he could get up. Sometimes he will fall as if in pain, especially if both legs extend outwards or spreading. He is gradually getting worse.

I had X-ray pictures taken twice; but could not see anything, only a dark spot, probably in the bladder. I had several good physicians and surgeons look at the pictures and the dog. I could not give the pictures much consideration.

In regard to treatment, I will lay down no lines as I often secured no results. I would like your advice on the subject, and treatment if any will be of benefit.—B. M. F., Pa.

REPLY: I believe your puppy to be suffering from the nervous form of distemper. This often acts very similar to infantile paralysis in the human.

I recommend that you again worm the pup for tape worms, as there may still be a considerable number in him; also worm him for round worms using either oil of chenopodium, which you can give in 10 to 15 minim doses mixed with one ounce of castor oil, such a dose to be repeated about every three days for three doses; or, you may use carbon tetrachlorid C. P., which is given at the rate of 2½ minims per pound weight of dog. The latter drug is to be given in capsules, unaccompanied by and not to be followed by purgatives. I consider it essential for the recovery of your pup that he be free from all intestinal parasites as they not only give rise to toxemia, but otherwise aggravate the nervous condition.

I fear there is a progressive degeneration occurring in the spinal cord and that the outcome is problematic to hopeless. For the condition of partial paralysis or choreic symptoms described by you, give potassium iodid in two-grain doses three times daily, watching, of course, for symptoms of iodism.

The foul fecal discharges call for the administration of an intestinal antiseptic. For this give three to five grain doses of salol, t. i. d., or the same dosage of betanaphthol. As a tonic, for the anemia, due both to the distemper and the tape worms, I recommend iron cacodylate. Procure from some reputable drug firm in ampules, and give a three-grain dose. Once daily is usually sufficient. This, of course, should be administered subcutaneously.

The dark area you observed in the X-ray photograph is the os penis. Physicians, when examining X-ray photographs of dogs, pronounce the os penis a cystic calculus with great regularity. Don't be misled in this by the technician who operated the X-ray machine.

Queries and Answers

FATAL MECHANICAL PNEUMONIA FROM DRENCHING A HORSE

I am writing you for your advice on veterinary law and if you think best, consult Hemenway or other authorities. I shall relate the case exactly as it is to you, and should like to know if other practitioners ever had it happen to them and how they account for same.

A middle-aged horse was sent in to be wormed, as they thought he was wormy, and I told the hostler that probably I would keep the horse only long enough to give a physic and to discover the kind of worms, then he could take it and give the treatment himself. The horse being just a little warm on arrival, I waited about a half hour (the hostler returning home) and then drenched him with four drams of aloin and six drams liquor cresolis compositus in a quart of water. There was no difficulty in drenching and the horse did not resist, nor show any sign of coughing or getting any into the lungs until just after I had let him down; then I could see him breathing a little more rapidly than before. I suspected what had happened after listening to his sides, yet could hardly believe it, for he never coughed nor struggled while drenching. He died in twenty-eight to thirty hours, but never coughed while I was about. He swallowed enough to purge him fairly well before he died.

I was the only one there while it was drenched, pulling up its head with one hand and drenching with the other. As soon as I was sure what was the trouble I called up the owner. Now, I do not claim that the horse did not die as a result of drenching, but believe this was the cause. Was it negligence on my part? I recently received a statement from the owner's lawyer claiming $250.00 due to negligence.—F. H. B., Ky.

REPLY: Your letter describes a typical case of deglutition pneumonia from drenching and graphically relates the circumstances under which such accidents usually occur, in contradiction to the general impression of those who have had no similar experience, that the danger is greatest when the animal fights or coughs, or both. Our observations show that the accident occurs when least suspected by the one administering the drench and is only detected afterward by the chill and fast breathing.

If you can show the horse was drenched in the usual manner and in obedience with the prevailing custom of veterinary practice you cannot be held responsible.

BOTULISM IN CATTLE

Having had quite a bit of trouble in cattle of late, I am sending in the following case report and would ask you to enlighten me. I think it is forage poisoning from eating rotten corn.

On arrival found several unable to rise and others very stiff. Some would stagger as though drunk, and so blind they would walk into objects. Temperature and respiration were normal. They seemed to have no pain at all; bowels usually normal but slightly dormant.

After several hours these animals will walk off all right and follow the herd to the field. Some remain down for days and days, eat and drink but are unable to rise. One that was down five days, died.

Some of them seem to have laminitis. I gave a purge and followed up with two ounce doses of potassium nitrate night and morning. I also gave them a tonic composed of gentian, nux, cinchona, sulphate of iron and ginger. I gave the tonic three times a day.

There are quite a number of these animals down, and what the termination will be I don't know, nor do I know what else to do. The trouble seems to be due to bad corn as one owner after having had his cattle in a corn field for quite a time, turned them into another field and the following day he had four head stiff but only one went down. The others recovered in a day.

A bad wind storm in September blew down the corn so badly, that many ears sprouted on the ground.—C. J. H., Iowa.

REPLY: The cattle you describe dying from eating sprouted corn are no doubt affected with some form of co-called botulism or forage poisoning, and we would recommend, of course, that they be removed from the sprouted fields and given the standard treatment for this disease, which consists of a good active cathartic. We would advise gamboge and magnesium sulphate as a drench, or even more active cathartics like barium chlorid are indicated.

The secret of cure in forage poisoning is good, active purgation and when this can be accomplished quickly, one can expect a successful termination.

CONTROLLING HORSES FOR HIP WOUNDS

Is it a safe procedure in confining a horse in the standing position for suturing a wound on the thigh or rump, to fasten one end of a plank or pole just ahead of the animal and firmly held against its side by assistants at other end of plank or pole, thus squeezing the horse against side of the stall or building?

Would it be considered the usual and proper method to employ to control a horse for such an operation? The writer once saw a colt placed in an ox frame used for shoeing oxen, and squeezed against the side of the frame by a plank held by two men, for an operation on the colt's foot. Shortly after it was released from the stocks, a large hernia developed and the animal was destroyed.

We know that one of the accepted methods used in casting cows is to squeeze them down with a rope properly placed around the cow's body, drawn taut and pulled by one or two assistants until the animal lies down, but bovines with their four stomachs and limited amount of intestines are different propositions. —W. G. R., Massachusetts.

REPLY: Where there is no operating table to secure a horse with such a wound and no possibility of improvising a good set of stocks, the horse should be taken right out into the open and secured with a twitch and single side line. That is, the opposite hind leg should be lifted from the ground with a rope passed between the forelegs and around the neck or through a collar adjusted to the horse for that purpose.

If the practitioner will then turn up the skin and wipe its internal surface with a two per cent solution of novocain everywhere that the needle will enter, there will seldom be much difficulty in controlling the patient well enough to give the wound a good, surgical treatment.

We do not believe in fastening horses against the side of a stall, fence or wall, because invariably in the struggle they become entangled and inflict injuries either to themselves or to the operators.

ANOREXIA IN A HORSE

I was called to see a horse about ten days ago, but could not get there at the time on account of bad roads. The owner stated that the horse would not eat and he thought he was bound up. The horse had no pain whatever and would drink plenty of water, looked bright, but just would not eat at all. I advised giving a quart of oil every twelve hours, until he got action. Well it took five quarts of oil to get a free passage, but still there was no change. It is about ten days now and the animal hasn't eaten a thing, and of course, is getting more gaunt every day.

I have advised drenching him with eggs and boiled milk several times a day and I am giving him a tonic of nux vomica, gentian, iron sulphate and ginger. What is your diagnosis of the above case and what would your treatment be?

What is a good remedy to get an animal to eat? Any advise on the above would be greatly appreciated.—C. J. H., Iowa.

REPLY: The horse affected with anorexia is undoubtedly off its feed from a torpid liver, since you seem to have excluded all other causes to which persistent anorexia might be traced.

We have always found that three doses of calomel given morning, noon and evening and then followed the next morning by an aloetic purge will generally stir up a little appetite. Stomatics such as you have given are indicated as soon as the purgation has ceased. Such an animal should have exercise, plenty of good water, and small quantities of feed should be offered at the regular feeding periods, taking away any portion that is not eaten within a reasonable time.

AZOTURIA AND SWAMP FEVER

Will you kindly mail me the latest treatment on azoturia and swamp fever, as my experience with these two diseases is not very satisfactory with my present treatment.—McI., Michigan.

REPLY: A good purgative and lots of good care of the azoturia patient, followed in convalescence by tonics is the only thing that we can advise.

Swamp fever is an incurable disease, all statements to the contrary notwithstanding. Medicines are of very little value, and the favorable reports on certain treatments are due purely to the fact that the febrile attacks are periodic. The supposed cures are but the intervals between the febrile states. It is these periods of normalcy that have given the impression that certain medicines are curative.

The North Dakota Experiment Station have had cases of swamp fever in their laboratories for thirteen years, on which they have tried all kinds of treatment and still in spite of this, the patients are still affected, and capable of transmitting the diseases to other animals brought in contact with them.

It seems to us that this proves our contention that swamp fever cannot be cured today.

THE DAMAGE OF THE SOIL BY TRACTORS

In the September issue of VETERINARY MEDICINE, I note on page 78, a statement about farm tractors, and the damage to farms from the use of same, by Wayne Dinsmore.

I would like to ask the author in what way he means this—vibration or lack of fertility from not using horses.

Please understand, I am not looking for someone to argue with, for I have no tractor and never expect to have, but in reading my VETERINARY MEDICINE, I read everything in each issue and try to reason out just what each writer means and this one is not just clear to me in a sense.—E. F. F., W. Va.

REPLY: The damage done to soil by farm tractors may, of course, be exaggerated and will always differ according to the character of the soil. In some soils, the tractor is positively disastrous. In some it is only harmful during wet weather and in others it does no harm at all.

The damage is physical damage and is entirely independent of the fact that it leaves no fertilizer behind. We have seen fields tilled by tractors even when pulling such pulverizing implements as discs and cultipackers show traces of the tractor wheels not only in depressions in the soil level, but also in the growth of the crop thereafter.

It is in tilling the soil more than in plowing that the tractor does harm. For this reason, there are many farmers in certain districts where the soil conditions are unfavorable who have been compelled to discard the tractor for all other work than plowing.

THE TREATMENT OF PNEUMONIA WITH BINIODID OF MERCURY

In an article in the January, 1921, issue of VETERINARY MEDICINE, Dr. Merillat wrote of a treatment by J. Cardas for pneumonia.

I have tried this treatment in a number of cases with good results with regard to the pneumonia, but invariably I get sloughing of the tissue in the region of the injection.

Would you kindly help me out on this as the article states that the swellings are benign and transient.—F. T. J., New York.

REPLY: Your difficulty is no doubt due to the concentrated solution you have been using. This substance, as you know, makes a good blister. I have looked up the formula given in the Journal and am sure that at least twice the amount of water there indicated should be used. You will remember that this was an abstract from the experiments of Mr. Cardas for which we assume no responsibility.

HEMORRHAGIC SEPTICEMIA IN SHEEP

I am sending you by parcel post, a section of lung, taken from a sheep, for bacteriological examination.

I found about twenty-five sick sheep in a band of seventeen hundred. They eat but little, loaf around and gradually become emaciated and die in the course of one to three months.

Postmortem findings are as follows: Adhesions of lungs to various parts of chest cavity, some pericarditis, lungs badly infected and containing a great deal of pus.

Please examine the specimen and let me know your findings.—F. H. H., Idaho.

Reply:—The bacteriological examination we made of the specimens sent showed very clearly that this flock of sheep is affected with hemorrhagic septicemia. The clinical findings indicate that it is of a chronic, non-virulent

form. It would be advisable to treat this herd with bacterins as well as to take the necessary quarantine precautions by insisting on the separation of the sick animals from the others until the disease is entirely eliminated.

AUTOPSIES ESSENTIAL

I am sending you samples of feeds under separate cover, mistrusting forage poisoning, as they have all the symptoms. Seven head of horses have already died and indications are that there will be more.

Please give this food stuff your careful examination, and report to me as soon as possible.—S. L. P., Illinois.

Reply:—The examination we made of the food samples sent is not convincing enough to make a diagnosis of the trouble, and in the absence of any clinical symptoms we could not confirm your suspicion that these animals really are dying from forage poisoning

Postmortem examinations on these animals would help a great deal in assisting you to solve the problem submitted, and should never be omitted in an investigation of an outbreak so serious.

MALIGNANT EDEMA IN A DOG

On Nov. 10th there was a well bred bird dog brought to my place by the trainer.

History: The dog was in the best of health till Nov. 8th, when he was taken out to the field and given a tryout for forty minutes and that evening developed a swelling on the left front leg above the knee.

Symptoms: High temperature, rapid pulse, swelling on left front leg extending along body to last rib, nose dry, lame, difficult breathing, crackling sound on palpation of the swelling.

Just before death I cut into the tumor and it had a very disagreeable odor and a frothy dark red liquid issued from the point of incision.

Death followed in a few hours. I called it black leg, but I had never heard of such a case in a dog and I would be glad to hear of any cases similar to this one.—J. N. E., Oklahoma.

REPLY: Your query describes a case of malignant edema. Where no laboratory confirmation can be had, the practitioner is always justified in attributing all such galloping, fatal, emphysematous conditions to this cause.

In young cattle, fatal emphysemas are generally called blackleg, yet even here there are some isolated cases that are due to other similar anaerobes, such as the vibron septique or the group of pseudo blackleg bacilli, to which other animals besides cattle are susceptible.

HARD SWELLINGS IN THE UDDER

A cow, about ten years old, has been a heavy milker. She has had hard swellings in the right front and left rear quarters of the udder. Has had this two or three times this summer and spring, and while in this condition, the eyes weep, the coat is rough, and she shows fever at times. I never heard her cough, but the owner tells me she sometimes does. I administered the tuberculin test.—E. F. F., W. Va.

REPLY: Lumpy conditions in the udders of cows are generally serious especially at the age of ten years, and although their true nature cannot be determined in an antemortem examination, there is in this case every reason to suspect malignancy since you have excluded tuberculosis by the tuberculin tests.

We would recommend regular milking three times a day without dragging heavily upon the affected quarters and a course of potassium iodid treatment covering a period of some weeks.

A FISTULOUS SHOULDER LESION

A gray mare twelve years old has a tumor on the point of the right shoulder, very deep seated, having three roots. The tumor and the roots were about eight inches long. This broke before being removed and discharged pus. On being removed, it was covered with roots like a quittor and looked more like a quittor than a collar tumor.

I have removed a good many quittors in this part of the country. There are always a lot of them over the country. Could it be possible this was bacillus necrophorus infection?—E. F. F., W. Va.

REPLY: The mare is affected with an infection of the lymph nodes underlying the brachiocephalicus muscle and despite ablation it may recur until these too are surgically removed. The "roots" referred to are characteristic of chronic suppurative conditions in this region.

Chlorozene, ¼ grs., bismuth subnitrate, 2 grs., zinc sulphocarbolate 3 grs, given every three of four hours is a very efficient intestinal antiseptic for the gastro-intestinal complications of distemper.

Zootechnics

Edited by E. MERILLAT, Physiological Processes and W. J. MARTIN, Husbandry

Introduction

By E. Merillat

There is no word in veterinary literature that is capable of a broader construction than "zootechnics." In its fullest sense it might quite properly be made to include the whole realm of veterinary science and animal husbandry combined. In fact, these are the two large branches which again fork into the smaller specialties. Its scope has been bounded at the will of the author in the past but present custom has imposed a limitation. It is today the study of breed, reproduction, food hygiene and the exploitation of the domestic animal and its products for the well-being of mankind.

Various Interpretations.

Zootechnics has been defined as "Animal engineering" (Baron), "The science of production and exploitation of the animal machine" (Sanson), "That part of natural history that treats of domestic animals" (Cornevin), "Experimental zoology" (Claude Bernard), "Domestication of animals" (Cent. Dict.), and "The breeding, keeping and handling animals in domestication or captivity" (Dorland).

According to Dechambre, the zootechnician of Alfort, zootechnics is neither an art nor a science, but the application of scientific facts to the production and exploitation of animals, in the same way as mechanics is the application of these to the liberal arts—the manufacture of machinery.

The word was "coined" by the Count de Gasparin in his book entitled "Agricultural Courses," published in France in 1843. Theretofore the subjects now included in zootechnics were described under such titles as "Applied hygiene," "General hygiene," "Knowledge of animals," "Handling of domestic animals," "Acclimatization and domestication of animals," etc.

To define the scope of this newly created department the word will mean "The production, development, preservation and utilization of the domestic animal and its products in so far as these concern the veterinary practitioner."

The Department's Objective.

The department will be devoted to **a review of passing events** rather than to voluble compilations belonging more properly to the textbook than to the pages of a monthly periodical. For graphic descriptions of breeds, type characteristics, the fundamentals and details that the veterinarian already knows or in which he is only incidentally concerned, the reader is referred to the library, since veterinary science is already too overcrowded to admit the integer into its scope without sacrifice of the purely veterinary studies.

The two, however, interlock at so many points that the one will always be engaged in making inroads into the other. The veterinarian will always want to know all about animal husbandry and the husbandman will always want to know all about veterinary science. In this, both are destined to disappointment because each is alone a life's study. To illustrate, the veterinary practitioner is not expected to qualify as the zootechnician for the breeder who has made a success and a lifetime study of a single breed, yet on the other hand he would fall short of requirements if he lacked the working knowledge of cardinal principles and poignant details upon which the success has depended, and by which he may be able to instruct the uninitiated and also acquit himself conversationally with the best expert.

It will be the aim to supply this need by refreshing the mind on important phases of fundamentals and by "boiling down" into readable paragraphs the voluminous current literature on the subject that the practitioner has no time to search and to which he has no continuous access.

It will always be interesting and profitable to learn, for example: (a) That the Depart-

ment of Agriculture has produced a new breed of chickens, combining the blood of the White Leghorn, the White Plymouth Rock and the Silver Gray Dorking, that are good layers, that lay the white eggs the market demands and that are fine birds for the table.

(b) That the University of Wisconsin has developed a process by which the bacterial count of milk can be ascertained in a few hours and that the innovation is a step toward the gradation of all market milk from that score.

(c) That a commission of experts in Holland have reported that roaring in breeding stallions is much less significant than was once supposed and that alone it should not disqualify an otherwise valuable stud.

(d) That the Horse Association of America is a live wire and that it reports 3,000 more horses in Chicago this year than last.

(e) That the six-horse unit is the most reliable and the most profitable power on the large farms.

(f) That filled milk is a fraud as a substitute for cow's milk and that its manufacture unchecked will make serious inroads on the dairy industry.

(g) That military experts of all countries unanimously pronounce the horse indispensable to the transport service of modern armies.

(h) That the future of the veterinary profession depends a great deal upon the consumption of animal products in gradually increasing quantities.

A Review of the Fundamentals

And furthermore, the mind might always with profit be refreshed from time to time on the established facts and modern conceptions of such physiological phenomena as heredity, variation, reversion, prepotency, telegony, individual excellence and others which underlie scientific and successful reproduction and exploitation without even implying that the veterinarian is not already well grounded on these fundamentals. It is always interesting to be reminded how the different authors define these phenomena and how breeders apply them to an anticipated goal.

It is never amiss to repeat that **heredity** manifests itself by transmitting characteristics possessed; **variation** by the appearance of new ones; that variation draws the species away from its normal bornes, heredity towards them; the one tending to destroy the work of the other (Dechambre); that reversion is the breeder's evidence of undesirable or desirable individuals in the family tree—the pedigree; or in short, breeding back to remote ancestors; that **prepotency** is the power of transmitting characteristics to the offspring, especially the power of transmitting **good qualities with great certainty**; that **adaptation** (Mumford) refers to the fitness of a breed for a definite purpose, as the Holstein for market milk, the Jersey for butter, the Hereford for beef, the Tamworth for bacon, the Berk for fat, the Merino for wool, the Dorset Horned for market lambs, the Percheron for the farm, the Shire for the dray, the Hackney for the home, the Leghorn for eggs, the Plymouth Rock for the table, and so on through the breeds of all species; and summarizing these facts, that a long line of good ancestors shown in the pedigree plus excellence and prepotency in the individual place the breeder on a sound working basis, providing all hopes are not shattered by the tyranny of environment—latitude, climate, shelter, food supply, attendants, and disease producing agencies. It is here that veterinary science and animal husbandry interlock inseparably; it is here the veterinarian takes command.

Bib. 1. Traite de Zootechnie, Dechambre, Vol. I, page 1.
2. Cours d'Agriculture, Comte de Gasparin, Vol. I, page 17.

Animal husbandry comprises the study of all zoological species capable of economic utilization. Its objective extends through the domestic mammals to the insects; from crustacea to mollusks and from birds to fishes. Its operations for orderly study may be grouped into: Production, Conservation, Amelioration and Exploitation.—LeClainche.

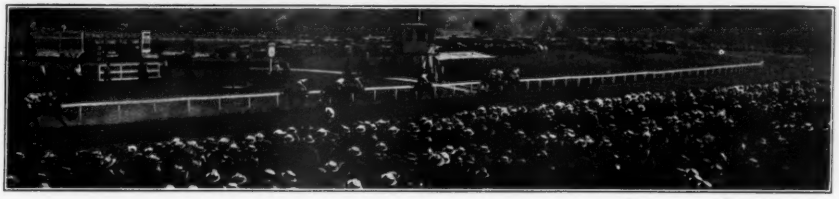
There is lots to learn about silos and ensilage that veterinarians do not know. As ensilage is destined to become as common a food for beef cattle as it has already become in the dairy industry, information in this connection is very desirable.

Except where the raising of chickens is a specialty, quality and performance should rule rather than numbers, since there is nothing that will arouse the temper more than a big flock of voracious miserably bred hens. On the other hand a few well-bred, well-housed and well-fed birds are always a pride.

As good breeds and fresh stock are so easily obtained at small cost there is no excuse for breeding scrubs.

Pointed Discussions of Live Topics

By READERS of VETERINARY MEDICINE



If the interest in the horse is dying out so fast, why these exceptionally large horse exhibits at all the fairs; why these large and enthusiastic audiences at horse shows; and pray tell us why one must crane one's neck so behind the crowded railing to see the horse races at the county fair?

Horse Association of America

Big national authorities stood up in the Chicago convention of the Horse Association of America last week, and unreservedly endorsed the horse as the logical source of power for the farmer and the most economical hauling power for city freighting. H. C. Taylor, Chief of the Bureau of Farm Markets, spoke in place of Secretary of Agriculture Wallace, calling attention to the official investigations of the department, proving that horses are more economical in every field operation on farms than the more recent iron steeds. Computed on 1921 feed prices, the cost of power per acre, according to the U. S. Department findings, is $1.37 for plowing with horses as compared with $1.72 with tractors; disking, 34c with horses and 55c with tractors; disking in combination, 32c with horses as against 59c with tractors; harrowing 18c with horses as against 30c with tractors; drawing hay loader, 52c with horses and 91c with tractors, and drawing grain binder, 31c with horses, 55c with tractors.

President Howard's Report

J. H. Howard, president of the American Farm Bureau Federation, an outstanding figure in American agriculture today and himself a practical farmer, vividly pictured farm life and the indispensability of horses. The work of the state agricultural colleges to promote better use of horses in farming and to raise production standards, was presented to the members of the Horse Association by the various heads of departments from colleges in the central west. The consensus in these reports was that the low point of horse displacement had been passed and that replacement had set in; that it was coming to be realized that horses should be bred for the definite qualities which stand the test of long, hard service; that this year has shown fuller utilization of horses in order to consume the coarse grains produced on farms and save outlay of cash for operating expenses.

Encouragement From the Secretary

Review of the work done in 1921 was made by President W. S. Dunham. The report of Secretary Wayne Dinsmore gave actual methods employed to encourage horse use in city freighting, pleasure riding, farm operations, presenting practical labor saving hitches showing horses in large team combinations, and in farm production, in which the association has urged that all breeding be selective to produce definite marketable utility types. Extensive investigations and publications of the association have reached into every farming community of the United States and to a limited degree into Canada, and to all principal cities. Mr. Dinsmore said, in part, "As stated before, our work is still in its beginning, but we have built broad and deep on

the solid rock of economic truth. Business men in cities are studying transportation problems as never before. It is no longer considered efficiency or progressiveness to use motorized equipment in the horse zone. Experience is showing our farmers the true status of tractors; they are awakening to the fact that neither tractors nor trucks have place in economical management of individual farms. Breeding is proceeding along better standards. Taken as a whole, public sentiment is gradually swinging into sane lines of discrimination."

The big objective—To increase horse and mule production and use.

I. **Investagations:**

(a) City Freighting—Reports covering 51,927 horses on file.

(b) Working Life of Horses, Harness and Wagons.

(c) Inventory: (1) of harness. 1 million sets now in use in cities, 9¾ million sets on farms; total 10¾ million sets. Annual replacement demand, 900,000 sets. (2) of work stock. In cities, 2,083,861 now in use. Annual replacement demand based on average of 9 years service, 231,540. On farms, based on acreage under cultivation for all states and working life of 12 years after reaching age of three, 1,627,856 head. Total annual replacement need for both city and farm use: 1,859,396. (3) of young stock. Foals of 1919 show present production at 1, 594,141 colts. This is 250,000 below replacement need.

(d) Replacements and work stock by zones.

(e) Feeding requirements; growing colts, city and farm work stock.

(f) Service records of city horses, to determine qualities for longevity and efficiency.

(g) Facilities for horseback riding in cities. Race Interests.

(h) Hitches for employment of big teams, a standard day's work.

(i) Displacement of horses and mules on farms by tractors would amount to eight times animal power cost.

II. **Publication**—Grand total 1,690,500 pieces of literature in the fiscal year 1920-21; 590,000 for city distribution and 945,000 for farm; also 155,900 on horseback riding.

III. **Distribution**—By direct mail, 286,435 leaflets in letters to city commercial interests; 227,307 similar leaflets distributed indirectly; 82,197 leaflets in letters to encourage horseback riding; indirect distribution of 54,841 additional; 353,404 leaflets in letters to agricultural leaders, and 507,778 on their request, distributed indirectly. Through the newspaper and magazine press, over a thousand linear inches per month turned back to us by clipping bureau, which is estimated at 20% of total appearing. Aggregate audience reached through the press, 24,000,000.

IV. **Results**—Increase in city use: Chicago rises from 30,388 horses in use on January 1, 1920 to 33,660 on June 1, 1921 (10%); Philadelphia from 19,472 on Jan. 1, 1920 to 24,538 in August, 1921, (25%). General rise in public regard of horse-drawn equipment. Increased breeding reported and better standards.

V. **Strengthening of Organization**—Energy and co-operation donated by all members; directors subjugated personal interests to give time and assistance. Membership extended in all groups, but greater effort still needed to offset organized resistance.

PRIZES FOR VETS

Annual cash prizes as an added inducement for careful study in veterinary science are being offered by old grads and faculty of this institution. These added prizes are open to veterinary students taking the required assignment in their division. At the present time there are three cash prizes of $25 each offered and it is probable that other interested alumni will offer more.

Dr. A. T. Kinsley, a graduate of this institution, is the first to offer an annual prize of $25 to the student attaining the best average in veterinary pathology. The faculty prize of $25, donated by members of the veterinary faculty, is offered for the student attaining the highest general average of all veterinary students. Dr. E. A. Schomoker, of the class of '17 and at the present time veterinarian for the western farm of the Carnation stock farms at Tolt, Wash., offers a cash prize of $25 annually for the veterinary student doing the best work in clinics.—Kansas State Collegian.

By expelling the air within their bodies, aquatic birds can make themselves heavier than water at will when they desire to sink.

INTERESTING ADVICE GIVEN TO PHYSICIANS BY THE DRUGGISTS

Do not prescribe a "white" powder or a "simple" remedy. Add an inert ingredient. This will induce the patient to consider the remedy of greater importance.

Do not prescribe colorless preparations.

Do not prescribe "proprietaries" without changing their physical appearance, to prevent them becoming "household remedies."

Prescribe "freshly-made" pills in preference to "factory-made" pills.

Do not prescribe 5 cents or 10 cents' worth of a medicament. It seems unprofessional to some.

It is sometimes well not to inform the patient what is ordered for him.

If requested by the patient to make an estimate on the cost of a medicine, it may not be politic to do so. To say nothing at times displays most wisdom.

Many patients have more faith in larger quantities; they do not believe in small doses; tablespoon doses would appeal more to some than teaspoon doses or drop doses.

It is not always prudent to tell the patient how the prescribed medicine will act.

Co-operation between the medical and pharmaceutical professions will redound to the benefit of both.

ECTOPIA CORDIS IN A HEIFER

Ectopia cordis in mature animals is not a very common malformation, although it is seen with considerable frequency in the newborn, especially in aborted fetuses.

Animals with this infection that grow into maturity are more rare. The University of Argentine, in August, 1920, reported two cases in mature animals who were found infected with this condition postmortem; but a glimpse through veterinary literature reveals a dearth of analogous cases. Dr. Kenneth G. McKay, Colville, Washington, reports such a case in his practice last November. The subject was an eighteen-month-old heifer that exhibited a very pronounced enlargement at the base of the neck that was strictly compatible with the animal's health and general welfare.

It was a pure-bred shorthorn animal that had been entered as an exhibit at the country fairs and which died from an accident in no way associated with the malformation. The autopsy revealed that the once mysterious enlargement protruding from the front and the chest contained the heart, normal in every respect except in location. The apex protruded forward and the ventricles rested at the level of the first rib. The aorta and pulmonary veins were anatomically normal.

SKIMMED MILK

Skimmed milk is a valuable food not only for its intrinsic value but also for its influence on other feeds. It is one of the profitable by-products of the farm and no matter how small the supply might be, it will always help to bring other feeds nearer to the required balance, if intelligently distributed with the rations of pig, calves and chickens. When derived from outside sources or from cows not known to be positively non-tuberculous it should be heated to the point of safety before feeding. It is a crime to waste it. Nitrogen is too precious an element to waste once it has been gathered into such a useful compound as milk. Insist that the separator be set to skim a cream that will test at least 40 per cent.

The protein content of given feeds means little unless its worth is proven by experience, because it is only the amount of available protein that counts. In this, skimmed milk stands highest of all feeds. The price of 25 to 75 cents per hundred would go soaring if its true food value were once comprehended.

COCCIDIOSIS IN CHICKS

In the study of this condition the author found on autopsy especially striking changes in the ceca; even externally it appeared dark red in color, whereas the other parts of the intestine manifested no particular changes aside from an injection of the blood vessels. In opening the intestines the mucous membrane of the cecum was blackish red, swollen and covered with a granular bloody-fibrinous deposit in which small pin-head size white foci were present. The dropplings showed a sausage shape formation of firm consistence and permeated with blood. The mucous membrane of the other intestines showed only a slight catarrhal affection. The stomach showed no abnormal condition The microscopical examination demonstrated coccidia. They were mostly of oval shape, provided with a double contoured membrane and with a gray granular contents in which a round nucleus was distinctly visible. Similar bodies were found also in the course of the entire intestinal tract, but in much smaller numbers.—(Deut. Tier. Woch. Nov. 31, 1921.)

VETERINARY HOSPITALS AT FAIRS AND STOCK SHOWS

The need of a good veterinary service and a properly appointed veterinary hospital in connection with all public events where animals are congregated from different sources will hardly be a question inasmuch as these animal agglomerations have always been recognized as more or less of a menace by exposing exhibits to contagions and then spreading them broadcast over the land when the animals are again redistributed.

Tuberculosis, thanks to the accredited herd system, is now well handled by the simple process of refusing exhibits not certified as free from this disease, but there are other equally serious hazards that have not been brought under the ban of regulatory measures, and which can only be made more safe by a rigid daily inspection and by subsequent isolation in a properly managed quarantine hospital.

There are still some bovines exhibited at many fairs that are not accompanied by acceptable certificates of health, there are many hogs brought to county fairs and larger shows that have not been vaccinated, there are many dogs exhibited at bench shows that come from kennels ridden with distemper and mange, and finally there never has been any effort whatever made to handle the problem of horse influenza.

With these facts staring the veterinarian, there is a good big reason to champion the enforcement of regulations that will carry their weight into every center where domestic animals are brought together for exhibition, and this can only be done by a well organized veterinary service and well managed veterinary hospitals for isolation.

The first movement to this end was put into operation at the Pacific International Exposition last November where a veterinary hospital, with the obvious purpose and determination of diminishing the menace of contagion from this source, was conducted under the direction of veterinarians.

Between the pure-bred scrub and the grade scrub choose the former, but better still insist upon a sire that belongs to neither category.

OBSERVATION—II

Some of the most unfortunate errors in diagnosis and treatment are due to lack of observation. In many instances it is the simple things that count, but, owing to routine methods of diagnosis, and the desire to form rapid opinions, sufficient time is not given to careful observation.

When simple but important matters are discovered on the second examination of a case, which were overlooked at the first examination, it is an indication of lack of thoroughness and of observation.

Many attendants of animals are very observant, and, having ample opportunity for watching the early symptoms of a case, can, if they so desire, give valuable information to the practitioner with regard to diagnosis. Moreover, in many instances, it is of supreme importance to know the correct history and the treatment to which the animal was subjected, etc.

Careful observation has often succeeded in disclosing what the attendant has endeavored to conceal. Evidences of a drench having been administered will not infrequently account for an attack of mechanical bronchitis.

A crepitating, swollen condition of the cervical region in a cow said to be suffering from "choking," and requiring to be "tubed," will suggest that the owner has already been trying his "'prentice hand" on the case, and, having ruptured the gullet, he is anxious to transfer the blame to the practitioner.

Many similar examples could be cited to demonstrate the necessity for observation prior to attempting the treatment of a case.

No doubt the faculty of observation is more highly developed in some individuals than in others, but it can be trained and cultivated in all. Much useful knowledge can be acquired by studying the methods known as those of Sherlock Holmes, which in reality are founded on trained and careful observation. Take, for example, the deceptions so often practiced by dishonest sellers of horses, where the trained eye of the careful veterinary surgeon has often saved him from pitfalls cunningly laid and cleverly designed.—E. Wallis Hoare, F. R. C. V. S., in The Veterinary News.

The real foundations of a nation's power and supremacy are the health, strength and virility of its people.—Chicago Health Bulletin.

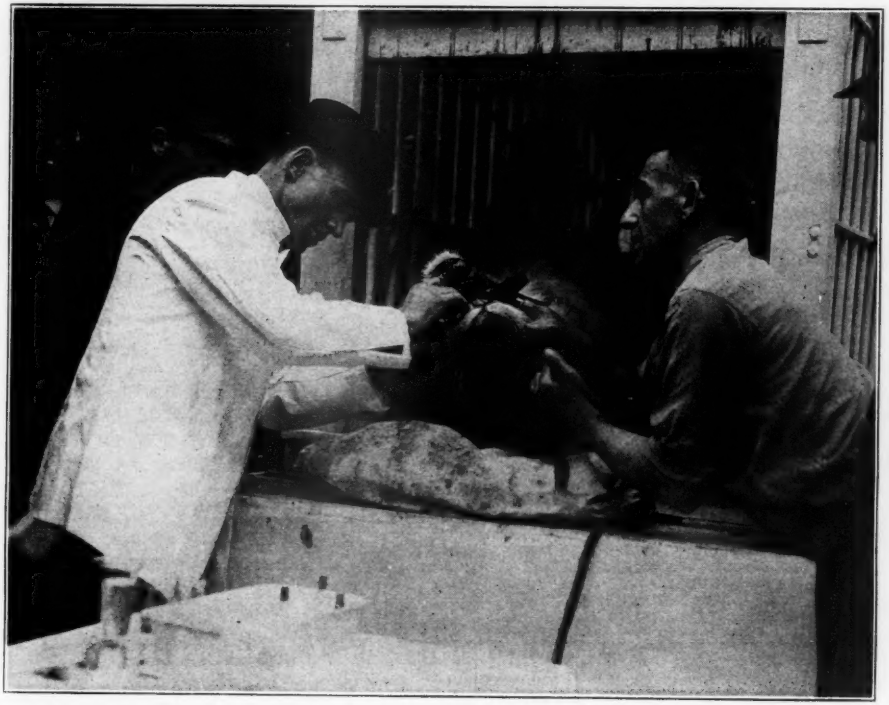
THE VETERINARIAN IN THE NEXT WAR

The next war! The term "next war" may be unpopular while an international conference is in session to arrange a peace program for the coming generation, but we have a vague notion that a nation like ours that was born fighting and has fought at shorter intervals than any other nation on the face of the earth, may sooner or later take a notion to elbow its way through the crowd and wade in again.

Anyway, the possibility that we might become embroiled is the reason why good citizens of every walk of life should concern themselves about the status their vocations will occupy when the time of this unwelcome event arrives.

The present moment is the opportune one for the veterinarian to discuss this subject, because the Surgeon-General of the Army has given wide publicity to the program of reorganization of the veterinary reserve corps through the medium of veterinary journals, describing in detail the regulations under which civilian veterinarians may make themselves useful to the nation's defense; urging every eligible man to enlist in this service and placing the responsibility of perfecting an effective corps in the hands of the profession itself.

If we decline this frank invitation to step in and help morally and materially, by supporting the movement and enlisting in the reserve service, we shall lose the golden opportunity to participate in the development of the peacetime forces and forfeit any claim for recognition once the thing is done.



Captain Jack Has Two Teeth Filled.

Dr. J. F. Gillespie of New York Filling Two Teeth of "Captain Jack," the Prize South African Lion of the Prospect Park, Brooklyn, New York, Zoo. Head Keeper O'Brien is Acting as Assistant.

—Photo by Keystone View Co.

If we procrastinate until the army is going into action our howls about organization, rank and perquisites may fall upon deaf ears. It may be too late. We should enlist in the reserve corps, support the Surgeon-General in his efforts to improve the veterinary corps and register our criticisms now, so that the inevitable mistakes of emergency organization at the last moment may be prevented.

When in 1917 a veterinary officer was sent from Washington to hurriedly "herd up" a veterinary personnel, a great crime was committed against the veterinary profession that will take some years to live down. It has been correctly styled "The Crime of 1917."

IDENTIFICATION OF TRYPANOSOMES IN ERYTHREA

Professor A. Pricolo and Dr. G. Ferraro in La Clinica Vet., 1920, No. 4.

The geographical designation of the various trypanosomes (Tr. sudanense, cerberum, marocanum, aegypticum, etc.) is considered by the authors as inappropriate. According to their findings the various names for trypanosome affections in different localities: mbori, eldebab, gudho jaffar, gefar, tahaga, represent one and the same disease. Their investigations extend over more than a hundred camels affected with trypanosomiasis, and in each case a re-inoculation of rats was undertaken. They further injected a camel which proved free from trypanosomes with the blood of a cow infected with trypanosomes and fourteen days later they found in the blood of the camel numerous trypanosomes which could not be transmitted to rats but were successfully transmitted to lambs. Based on these findings and also on previous observations they are of the opinion that the existence of two species of trypanosomes in erythrea may be considered as proven. One, the trypanosoma Evansi, which occurs in camels and solipeds, and the second, the trypansoma vivax-uniforme, which attacks cattle. On the other hand, it is not proven that the latter occurs under natural conditions in camel or solipeds and the former in cattle. However, on artificial transmission the camel proved susceptible for the trypanosoma vivax-uniforme. The trypanosoma vivax is characterized by extraordinary rapid movement in fresh preparations; in stained preparations it is club-shaped, 16 to 31 microns long, 2 to 3 microns broad; the root of the flagella is located near the posterior extremity, the undulated membrane is only slightly developed. It is distinguished from the trypanosoma Evansi by the movement of the flagella, which in the trypanosoma Evansi is always in the form of a curve, whereas in the trypanosoma vivax it occurs along a straight line.

"VETERINARY CHIROPRACTIC"

To the Editor: The comment on "Veterinary Chiropractic" (The Journal, September 17, p. 944) reminds me of an incident of two or three years ago. A chiropractor was making regular calls at the home of a prosperous farmer to "adjust" the farmer's wife. The farmer had a full blood Holstein heifer fresh for the first time and unfortunately the heifer gave milk but from two teats. To attend the heifer the farmer called a graduate veterinary surgeon, who had made two or three trips to the farm but who had not succeeded in obtaining milk from the other two teats. The heifer was mentioned in presence of the chiropractor, who said, "Let me see the heifer, I can fix her for you." So after adjusting the farmer's wife the chiropractor went to the barn, ran his fingers along the heifer's spine, and said, "Here is the trouble, right here." He secured a croquet ball and mallet, returned to the barn, placed the ball on the heifer's back and hit it with the mallet, assuring the farmer that the heifer would be all right now. The heifer never gave milk from the other two teats. The farmer tells the story and thinks it a great joke that the chiropractor should attempt to adjust the heifer, but it has not yet dawned on the farmer that there is any joke in the chiropractor adjusting his wife.—Rolla Cairns, M. D., River Falls, Wis.

IMPERFECT EGGS FOR HATCHING

Durckhein in Dut. Land. Gefl. Zeit, Vol. 23, No. 29.

It is customary in poultry husbandry to utilize for hatching only eggs which have a good form and perfect shell. The author possessed a good Wyandotte hen which constantly laid imperfect eggs. They were large, had rings, a hunch-like point and a rough shell. The hatching experiment conducted with these eggs resulted that all the chicks hatched from them were in perfect health, of normal confirmation and of good size. That is, they were at least as good as those hatched from normal eggs. Therefore, it is not necessary to attach too much importance to the shape of the egg for hatching purposes.

INCREASING FLOCK PRODUCTION IN SHEEP

Breeders of sheep have always noticed that there is no material difference in the size between twins, triplets and singles once fully developed. In fact, they cannot be distinguished one from another when fully matured. With this outstanding fact in mind, it is quite natural that the one big aim is that of breeding as many twins and triplets as possible. Selection of twins as breeding ewes has failed in producing a higher percentage of twin lambs, and the preservation of the ewe that produced twins at the first parturition has likewise been a disappointment. The twin does not produce any more twins than the single, and the mother that once produced twins or even triplets may go on through life without repeating the precious gift, and besides all things being equal, there is no appreciable difference between rams.

The remedy must be sought in the management of the flock. Ewes conceiving during the first days the rams are turned with them yield the highest percentage of twins; the flock must be so handled and fed that they will gain flesh during the breeding season and in no instance must they ever be exposed to inclement conditions; and the ram must share in this good treatment. It is also very essential that the ram must be given only a restricted number of ewes or, when this cannot be done, it should be given intervals of rest away from the flock.

POWERS OF OBSERVATION

It is of the greatest importance to educate the powers of observation in the student. Generally speaking, this subject is neglected, as it is not supposed to come under the heading of scientific teaching. Yet there are few practitioners who do not recognize the necessity for training in this direction, while there are many who are aware of the detrimental effects on reputation which have resulted from neglect of early training in the subject.

"Use your eyes" is an advice of equal value to "use your ears and hands." Observe carefully your client and the surroundings as well as your patient. This is an important admonition, although it has not emanated from the professional chair. The observant practitioner becomes skilled in the art of reading human character, and thus is often enabled to judge whether the statements made are true, or the reverse.

The young graduate who starts in practice is apt to imagine that plausibility is synonymous with veracity. Time and experience lead him to believe that David of old was not so very far wrong in making the remark, although in haste, that "all men were liars." Certainly, individuals associated with horse-flesh are not specially truthful when giving information to the veterinary surgeon. The medical man is able to converse with his patient, and thus is able to take the information volunteered by the patient's friends cum grano salis. Consequently, he has a great advantage over the veterinary surgeon, even though occasionally the patient may for certain reasons, act the part of Ananias.—E. Wallis Hoare, F. R. C. V. S., in The Veterinary News.

For Alopecia.

℞
Fluidextracti pilocarpi.
Tincturae cantharidis ..... āā ℥ss
Glycerini.
Petrolati liquidi ..... āā ℥i
M.
S. Apply externally.

For Constipation or Impaction.

℞
Physostigminae sulphatis ..... gr.i
Pilocarpinae hydrochloridae ..... gr.iii
Strychninae sulphatis ..... gr.ss
Aquae destillatae ..... ℥i
M.
Sig. Give at once subcutaneously.

Tonic for Horse.

℞
Arseni trioxidi ..... ℥i
Pulveris nucis vomicae.
Ferri sulphatis exsiccati ..... āā ℥iv
M. Divide in chartulas No. xxx.
S. One powder on feed t. i. d.

Anodyne for Colic.

℞
Tincturae opii ..... ℥ii
Aetheris ..... ℥i
Chloroformi ..... ℥i
M.
S. Give at once dose in pint of cold water, and follow with physic ball.

For Small Wounds, Galls and Chafes.

℞
Methyl, blue ..... gr.ss
Tincture iodi ..... ♏xx
Unguenti zinci oxidi.
Petrolati ..... āā ℥ss
M.
S. Apply externally.

Ball for Horses with Diarrhea.

℞
Creolini.
Cretae praep.
Pulv. zingiberis .....āā ʒss
Pulv. opii .....ʒi
M. et fiat bolus No. 1.
Sig. Give at once.
*From Winslow's Veterinary Materia Medica.

NINE WAYS TO KILL A VETERINARY SOCIETY.

Keep away from all the meetings, but kick hard about everything that is done.

If you should go to the town the meeting is held in don't trouble yourself about attending the sessions but be sure to kick hard about the officers elected.

If you attend the session take no part in the discussion but register your arguments to those sitting around and thus expound your wisdom and at the same time cause as much confusion and distraction from the speaker as possible.

If you are not appointed on any committee get sore, and if you are, take no part in its work.

Don't pay your dues promptly; make the secretary waste as much postage and time as possible before loosening up, and then try to send a check that will be returned marked: no funds.

Do not bother about getting new members, but tell everyone you meet that you have a notion to quit the association.

If the chair should ask your opinion on any subject say nothing but after the meeting gather a group around you and tell them all about it.

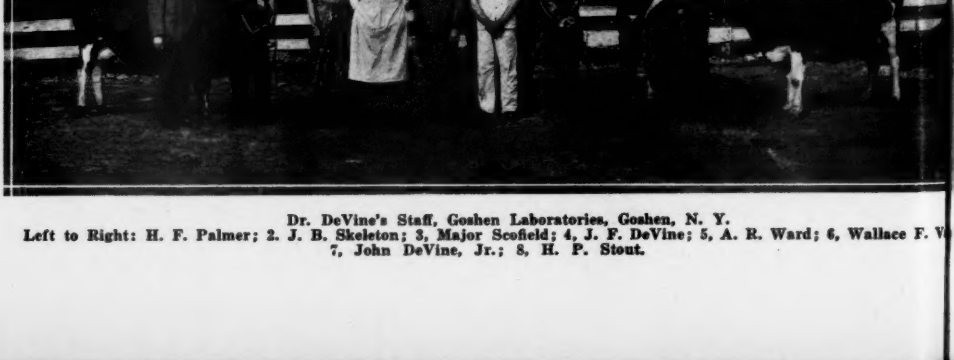
Be sure to enter all sessions as late as possible and especially while some one is addressing the meeting.

Go out two or three times during each session and induce others to follow. It might discourage the speaker enough to prevent him from coming again.

ETIOLOGY OF INTESTINAL AND MESENTERIC EMPHYSEMA IN HOGS

Dr. K. Jarmai in Allatorvosi Lapok, 1920, No. 23 and 24.

This condition, which is often observed in slaughtered hogs, cannot be detected in the living animals. According to some authors the gases originate from swallowed air. Others claim they are bacterial products (Dupras believes that they are caused by a specific coccus, whereas Jager is of the opinion that the condition is induced by the bacterium coli lymphaticum aerogenes). Joest proved that the ordinary bacillus coli communis is capable of inducing these changes in certain cases, when the intestinal wall permits the penetration of bacteria, as for instance in intestinal catarrh. The author had the opportunity to observe these changes in suckling pigs which were affected with enteritis with superficial necrosis. He succeeded in cultivating pure cultures of coli bacilli from the mesentery lymph glands of Drigalsky-Agar and also in identifying them with the sero agglutination test. The gases in the suckling pigs developed readily in great quantity and thence penetrated through the intestinal walls.



Dr. DeVine's Staff, Goshen Laboratories, Goshen, N. Y.
Left to Right: H. F. Palmer; 2. J. B. Skeleton; 3, Major Scofield; 4, J. F. DeVine; 5, A. R. Ward; 6, Wallace F. V
7, John DeVine, Jr.; 8, H. P. Stout.

ASMOSPHERIC CONDITIONS AND VETERINARY PRACTICE.

(Continued from Page 12.)

constant air currents and their virulence being reduced or destroyed through the disinfecting action of the light and dryness. Probably the only diseases that are to be excepted in this connection are sheep pox, hog cholera, rinderpest and perhaps the dreaded foot and mouth disease. On the other hand diseases are transmitted much more frequently in closed rooms and stables when diseased individuals are there to infect the air with their excretions. The infectious agents become mixed with the air through coughing, snorting, etc., in droplet form, as is found to occur in pulmonary tuberculosis, contagious pleuro-pneumonia of cattle, swine plague or hemorrhagic septicemia of swine, equine influenza, pulmonary and nasal glanders, etc. If, however, these droplets become dry, the resulting dust will only be infectious if it harbors such as the following organisms which withstand drying out: hog cholera, sheep pox, staphylococci, spores of fungi, anthrax, black leg, tetanus, malignant edema, etc. Streptococci are more easily destroyed as are also various hemorrhagic septicemia organisms.

Atmospheric Temperature

Heat and cold influences, first of all the body heat regulation, and this in turn is influenced by the humidity, air movements and the natural means of heat preservation, such as hair shedding and fat and also the artificial means of heat control, for example, blanketing, clipping, etc. Too high atmospheric temperature can lead to a heat stasis or heat stroke; insufficient heat or cooling off too rapidly can lead to a cold or freezing.

The harmful effects of sunstroke are due to the intensive heat from the sun. It produces an irritation of the skin and symptoms of cerebral irritation, and even cerebral meningitis. Bones, muscles and fat allow the heat to pass through more readily than the brain and as a result a more marked accumulation and absorption of heat occurs on the upper surface of the brain. The rays from a sixty-five candlepower Nernst lamp will pass through, that is, show their effects through skin, cranial bones and dura mater in fifteen seconds.

The resistance of different animals to heat varies as follows: Generally the horse withstands the heat best, sheep least and cattle, swine and dogs stand halfway between. Lean animals having a delicate skin and a thin coat of hair suffer less than do the very fat animals. Horses known as "dummy"—chronic hydrocephalus—show an increase in their depressed condition, or have attacks resembling mania.

Under certain conditions excessive cold is better withstood than is excessive heat. Freezing of the individual parts of the body or of the entire body in our climate seldom occurs, when sufficient food is eaten and sufficient muscular exercise is indulged in. Wind or a high relative humidity tend to intensify the effects of cold.

During freezing, we first observe anemia of the skin and a cooling of the peripheral parts of the body and the extremities. Local paralysis of the vessels follows, with a resulting hyperemia and swelling, slowing of the circulation and even stasis. Finally the peripheral parts freeze and death and necrosis of the cellular elements occurs. When the cold only causes prolonged contraction of the skin vessels, it leads to pulmonary and cerebral congestion with their sequelae of headache from the pressure, later loss of equilibrium, dizziness, syncope and finally death through paralysis of the central nervous system. Continued moderate cold is best withstood by sheep and least by horses. Feed can be saved by housing animals in moderately warm stables, if they are to be kept indoors for a long period, as they will not require as much feed as when kept in a cold or very cool place.

(To be Continued.)

"The veterinary reserve corps is to be organized and administered in the interest of veterinary military preparedness and by regulations prescribed by law upon which the veterinary profession was well represented. Being a national asset to be used in an emergency which in modern times seems to call for the mobilization of practically every activity of the country, it should be supported by the entire veterinary profession. If the profession cannot support it as thus organized it should demand that it so organize as to warrant its support"—The Surgeon General of the Army.

Looking Backward

It is during the Eocene subdivision of the Tertiary period that mammals first appeared on the face of the earth.

The first tuberculin test in the United States was made by the late Professor Leonard Pearson in 1892, while he was state veterinarian of Pennsylvania.

At a meeting of the Pathological Society of London, April 6, 1875, the germ theory of disease was formally introduced for discussion for the first time.

To Dr. Adolph Eichhorn, of the Lederle Laboratories and a department editor of VETERINARY MEDICINE, belongs the credit of introducing the double neurotomy for spavin into this country—1900.

"Secretary Wilson calls attention to the fact that the United States Army is the only one in the civilized world in which veterinarians do not hold commissions. This is one reason he thinks why competent men in the profession have not sought service in the army."—Breeders' Gazette, May 25, 1898.

As late as October 1877, after the late Lord Lister had performed an operation on a fractured patella, a professor in a neighboring hospital, speaking to his students said, "When this patient dies that man should be prosecuted for malpractice." Truly, the man who leaves the beaten path invites the scorn of his peers.

At the annual meeting of the Illinois State Veterinary Medical Association in 1894 there were nine members present. Today a meeting of fewer than 300 is pronounced a failure.

At the World's Columbian Exposition, 1893, veterinary exhibits were not very numerous, nor conspicuous, the organized veterinary profession having entirely overlooked the publicity possibilities of this great exposition. Among the few things shown were six actinomycotic jaws of cattle prepared by N. S. Mayo, then professor of veterinary science in the Kansas State College of Agriculture.

The use of gutta percha in animal dentistry was introduced by R. C. Moore in 1886.

Turner, Lemay, Treacy and Griffin were the heavyweights of the army veterinary service in the early 90's.

As late as 1892 the subject of asepsis in surgery was just beginning to filter into the veterinary profession. Lowe of New Jersey, and the late W. F. Winchester of Massachusetts, were the first writers on the subject in this country.

Prof. D. E. Salmon, the solid chief of the Bureau of Animal Industry, revealed himself as the defender of the two-year schools. His arguments were so powerful (?) at the meeting that no one dared to answer them. (Am. Vet. Rev. Nov., 1894.)

At the Missouri Valley Veterinary Medical Association, October 3, 1894, H. H. Harrison of Atchison, Kansas, said: "I have seen some very disastrous results from irrigations of the womb of cows—it is common to find after this procedure a metritis or endometritis set up by the fluid which has been left."

At the annual meeting of the United States Veterinary Medical Association in 1894, Dr. D. E. Salmon, Chief of the Bureau of Animal Industry, announced that out of thirty veterinarians who took the civil service examinations for meat inspectors, only two passed, and that these two were foreigners.

How Glanders was Diagnosed During the Spanish-American War

He (the vet) jumped from his chariot in which he arrived, injected a quantity of mallein, took the temperature immediately after, scraped some nasal discharge on a slide, slipped it into a microscope he carried with him, stood the apparatus on the fence, cast his eagle eye along the sights and in a moment roared "glanders" to the awe-struck audience of troopers; and another life was sacrificed to the altar of science.—Col. Griffin, in the Am. Vet. Rev. Apr. 1900.

The Haver-Glover Page

PUBLISHED EVERY NOW AND THEN IN THE INTEREST OF GRADUATE VETERINARIANS

TO the majority of the readers of this page it is unnecessary to mention that we have devoted eleven months' time to talking SALES POLICIES. They KNOW that we are not selling to every practitioner who happens to have a license, but only to about half the number of licensed men—the Graduates.

These policy talks have made us many friends —more than we had expected in such a brief period of time—but during the meantime an important part of our work has been mailing our catalogs to graduate veterinarians.

Little has been said regarding our products, and it is *little* indeed when there is so *much* to be said.

The H-G Graduate Harmonies, our bimonthly publication, has informed you regarding our advancement in the veterinary field, so that we have been with you during the past ten months, regularly — not waiting for the so-called normal conditions to return.

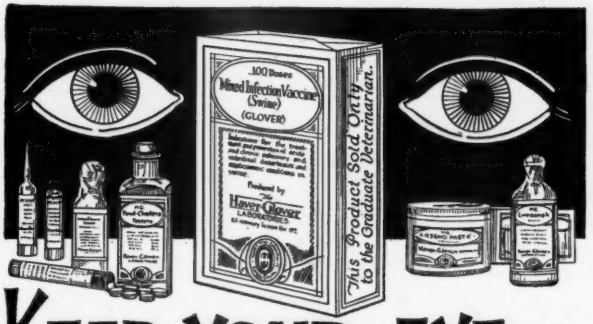
Harvest time, chautauquas and county fairs have interfered with the practitioner's plans no doubt, but now his fall work is right at hand. Most of the country banks offer encouragement for the betterment of conditions and it is up to all of us to make the best of it.

There is plenty of work to be done. Veterinarians who have been engaged in general practice, where all lines of activity invited their attention, have been on the job regularly. Now is the time to educate the client that veterinary service in the care of ALL of his stock is profitable to all concerned.

We can't wait for business, it's up to us to "fight" for it. But with Haver-Glover ammunition, with each package marked, "This product sold only to the Graduate Veterinarian," you do not have to offer excuses because the neighborhood quack has used the same product. You can point out the fact that it is especially prepared for your use, better than he can buy.

If you are not already using these "Graduate" products get out your H - G catalog *now* and prepare an approval order. This will mark the beginning of a profitable co-operative service for you —such as you have never before enjoyed.

Thanks for the opportunity of demonstrating.



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FROM label to contents they are made to give the Graduate Veterinarian satisfactory service. Look well at the label. It embodies, first—the exact percentages of the composite ingredients, secondly, suggestive indications and directions for use. And above all note well that every product carries in prominent type, the outstanding policy of this organization, "This product sold only to the Graduate Veterinarian."

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So keep us in mind—keep your eye on the Haver-Glover line!

Matters of Current Interest

In the general scheme of life the function of the animal kingdom is that of supplying nitrogen to the soil.

Dr. L. E. Hull has moved from Colchester, Illinois, to Joslin, Illinois, and will practice in both Joslin and Hillsdale.

Dr. Fred Evans, veterinarian for the health department of Sioux Falls, South Dakota, has resigned and is succeeded by Dr. O. W. Stanley, who was formerly city veterinarian of that city.

Dr. Alex Johnson of Peotone, Ill., has sold his practice to Dr. A. J. Rooney, formerly of Chicago.

Dr. F. H. Gordon, Augusta, Illinois, has disposed of his practice to Dr. Leslie Clark. Dr. Gordon has been practicing at Augusta for seventeen years.

An examination for the federal accredited herd list will be held under the auspices of the Bureau of Animal Industry, U. S. Department of Agriculture, for the state of Illinois on January 24, 1922, at the following locations: Chicago, Springfield and East St. Louis. Information may be obtained by addressing the state veterinarian, Dr. F. A. Laird, Springfield, Ill.

Dr. Fred C. Schmidt has just opened a modern clinic and veterinary practice under the firm name of the Portland Veterinary Hospital, in the heart of the city of Portland, Oregon. The new hospital occupies a large brick building and is equipped with an operating room, box stalls, kennels and other facilities to handle all species of animals.

F. V. Kniest, Peters Trust Building, Omaha, Nebraska, is still after business in this, his eighteenth year. If you want to sell, buy, want a position, need an assistant, doctor, dentist or veterinarian, write to him for terms no matter where you live. Special plans and gilt edged references with no obligation in writing him your wants.

Ectropion is more frequent in jacks than in any other domestic animal.—Sigler.

Dr. Walter Smith of Crown Point, Indiana, has removed to Valparaiso, where he will continue practice amid bigger opportunities.

According to a press report more than 2,000 hogs died from cholera in the west half of Coles County, Illinois, during the month of November.

VETERINARY NEWS answers the question "Is it possible to give a too large dose of tuberculin" in the negative after reporting experiment on four healthy cows that were given 2.5, 5, 7.5, and 10cc respectively, without showing any reaction whatever.

Dr. G. H. Hines, who has recently taken over the large practice of Dr. Roberts at Galena, Illinois, was married to Miss Mollie M. Beebe, a popular young lady of Atwood, Illinois, November 10, 1921, starting the big job without the handicap of celibacy.

Secretary of Agriculture Wallace has listed sixty-six packing houses as coming under the federal law regulating these establishments, and it is reported more will be added from time to time.

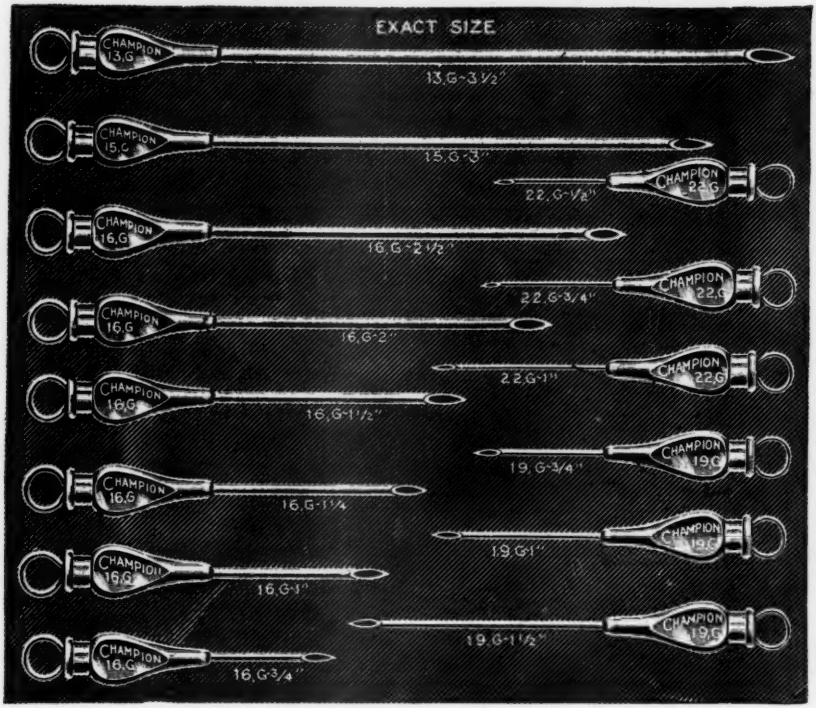
There is no bovine tuberculosis in the Malay States and out of 250,000 hogs slaughtered in a single abattoir none were diseased. There are, however, from 3,000 to 5,000 per million of the human population affected with tuberculosis.—Tubercle.

Veterinary Specialty Company Sold.

Dr. J. V. LaCroix of Evanston, Illinois, and Mr. Elwood G. Duble, Jr., of Chicago, have purchased the Veterinary Specialty Company, formerly located at Holland, Michigan. The business will be moved to Chicago.

CHAMPION

Syringes and Needles



The quality of CHAMPION Needles is in keeping with CHAMPION Syringes, with which they are designed to be used. Both are the product of skilled labor, applied to the best material obtainable, with a keen appreciation of the severe demands made upon them in service.

CHAMPION Needles are made in 44 different sizes, ranging from 22 gauge ½" to 13 gauge 3½", as shown above. They range in price from $2.00 to $4.00 per dozen.

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The individual who thinks well of you, who keeps his mind on your good qualities, and does not look for flaws, is your friend. Who is my brother? I'll tell you: He is one who recognized the good in me.—Fra Elbertus.

Assume that the digestive tract always has parasites; that the respiratory system usually has parasites; that the excretory and circulatory systems sometime harbor parasites; and that the muscular, skeletal, nervous, and reproductive systems may harbor parasites at times.—Hall.

Dr. W. L. Coplin and Dr. L. D. Nowell of Humboldt, Tenn., have formed a joint partnership and are conducting two veterinary hospitals

Dr. Coplin is stationed at Jackson, Tenn., and Dr. Nowell at Humboldt.

They both report practice conditions favorable.

At the Pacific International Live Stock Exposition, November 5 and 6, a hospital for sick and injured animals was provided.

Dr. P. C. Molgard has recently located at Ruskin, Neb. Dr. Molgard is a graduate of the Kansas City Veterinary College.

Dr. H. J. Hygren of Waverly, Iowa, has improved his establishment by making important additions to his hospital.

Dr. Jesse Robards, B. A. I. inspector of North Texas, has been transferred from Dallas to San Antonio.

"MY KINGDOM FOR A HORSE"—

"Wish I'd lived when that king was bidding so high for one of our ancestors," said romantic Winnie to her Knickerbocker team mate, Ned. "Yes, he had the heart of a lion all right, but he had to have a trusty steed so he could 'deliver the goods,'" said Ned. "It's pretty much the same today if you're in the milk or ice business. You've got to have the personal service we horses give to deliver the goods. Imagine having to stop a motor at every other door? Our driver never has to stop us—we know." "And we're never 'cranky' like those gasoline eaters," replied Winnie, "and we're always on time."

The Sangamon County Veterinary Medical Association held its regular monthly meeting at the St. Nicholas Hotel, Springfield, Illinois, November 20, 1921, winding up the program with a lively banquet. Dr. M. M. Fletcher of Illiopolis was elected president, Dr. C. C. Hastings of Williamsville, secretary-treasurer, and Drs. Dickerson and Yowell vice-presidents. The meeting was addressed by Chief Veterinarian Laird of Springfield, Dr. Jungerman of Kansas, and Dr. James McDonald of the B. A. I. The subjects of sterility by Jungerman and of hog cholera by Laird and McDonald were predominant.

Sells Practice.

Dr. K. H. Cleaver, Reading, Pa., well known veterinary surgeon, who has been conducting a large practice at 14 North Eighth Street for more than 14 years, sold out to Dr. Russell S. Detweiler, of Royersford, Pa., and has gone into retirement on account of ill health and advanced age. Dr. Cleaver was one of the best known veterinarians in this part of the state.

Dr. Detweiler was graduated from the University of Pennsylvania in 1915. Shortly after he conveyed horses to Italy for the Italian government and then practiced for two years in Ohio. He served in the world war and was overseas, evacuating horses in the Chateau-Thierry sector for the 28th Division and other divisions of the A. E. F. Since leaving the army he has been doing private work on stock farms.

Dr. J. E. Davis, who moved to Canada several years ago, has returned with his family to the Stars and Stripes and has located for practice at Christman, Illinois.

A serious outbreak of anthrax occurred throughout the Sacramento Valley during October. Dr. M. E. McDonald, field veterinarian for the state department of agriculture, charged with its control, reports a prompt, favorable termination from the measures instituted.

Dr. John F. Keller, who for many years was veterinarian for Barnum and Bailey's circus and said to be an expert on the diseases of all animals from snakes to elephants, has located for private practice at Quincy, Florida.

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for their favors of the past. 1922, we hope, will be a happy and prosperous year for you.

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ILLINOIS STATE VETERINARY MEDICAL ASSOCIATION

The fortieth annual meeting of the Illinois State Veterinary Medical Association was held in Chicago, December 1 and 2, 1921, carrying out one of the most interesting programs ever presented at a state meeting and by a personnel seldom, if ever, brought together for such an occasion. The literary entertainment was as follows:

A Report of the Progress of the Control of Infectious Diseases of Animals, A. Eichhorn, Pearl River, N. Y., Veterinary Director, Lederle Laboratories.

Common Disease of the Jack and Their Treatment, T. A Sigler, Greencastle, Ind.

Live Stock Sanitation, W. J. Butler, Helena, Mont., State Veterinarian.

The Importance of the Diagnosis of Pregnancy in Sterility Work and Recent Observations on Chronic Cervicitis, J. F. DeVine, Goshen, N. Y., Professor of Bovine Pathology, New York State Veterinary College, New York City.

Small Animal Practice, O. V. Brumley, Columbus, Ohio. Director of Clinics, Veterinary Department, Ohio State University.

The Poultry Industry; Its Loss from Disease and Parasitisms, A. G. Phillips, LaFayette, Ind., Professor of Poultry Husbandry, Purdue University.

Common Diseases of Swine, A. T. Kinsley, Kansas City, Mo., President A. V. M. A.

Carbon Tetrachloride as an Anthelmintic, Maurice C. Hall, Washington, D. C., Senior Zoologist, U. S. Department of Agriculture.

Methods of Increasing One's Professional Income, L A. Merillat, Chicago, Ill., Editor, Veterinary Medicine.

Atmospheric Conditions and Veterinary Practice, A. A. Leibold, Chicago, Associate Pathologist, Zell-Straub Laboratories.

Lesions of Disease in Swine, J. S. Koen, Bloomington, Liberty Laboratories.

The Veterinary Profession, V. A. Moore, Ithaca, N. Y., Dean, New York State Veterinary College, Cornell University.

The retiring officers are: T. J. Foster, Monticello, President, and D. M. Campbell, Chicago, Secretary-Treasurer.

The officers elected were: W. Lester Hollister, Avon, President; D. S. Jaffray, Chicago, Vice-President; and L. A. Merillat, Chicago, Secretary-Treasurer.

Bitten by Dog, Forgot About It, Dies From Rabies

Rabies, unsuspected for weeks, killed Henry Kessell, thirteen, of No. 402 East 54th street. He died in Bellevue Hospital recently.

His mother, Mrs. Mary Moran, is employed in the laundry at Bellevue. She said that six or eight weeks ago her boy came in from play and showed two pin pricks in his right forearm near the elbow. He told her a little fox terrier he never had seen before had jumped up at him without provocation and bitten him.

Mrs. Moran took the boy to a drug store in the neighborhood and "put peroxide on the wounds and bandaged up the arm." The wounds were so tiny that she and her son gave little concern to them and they disappeared quickly. Henry went to his classes in the parochial school of the Church of St. John, Evangelist, First avenue and 55th street, and forgot the dog bite. It passed out of his mother's mind so entirely that she did not remember it when a physician asked her last week if anything unusual had happened to her son.

Henry Kessell became ill several days ago, drooped and had pains, his mother believed, which indicated pleurisy. She told the physician she did not remember any accident to her son, but two days later she remembered the dog bite and rushed back to the physician. He advised her to send the boy to a hospital at once, and she took her son to Bellevue.

There his case was instantly diagnosed as rabies and every effort made to save him with the serum treatment, effective in most cases if administered in time. The case of young Kessell had progressed too far. The surgeons said the peroxide of hydrogen applied had been of little or no preventive value, that iodine might have helped, but that immediate serum treatment was the only dependable method in any dog bite case.—The Evening (N. Y.) World.

Deadly Horse Disease Epidemic in Nelson County, Kentucky

A disease which caused the loss of over 100,000 head of horse stock in Kansas and Nebraska, seven years ago, has broken out in this and adjoining counties, lately.

The disease was known by "old timers" as sleepy staggers, blind staggers, mad staggers and throat paralysis, according to the symptoms present. Later it was known as infec-

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tious cerebro-spinal meningitis, putrid sore throat and forage poisoning or Kansas horse disease.

A few animals receiving early treatment recover, but a large majority die.

Dr. Robert Graham, formerly of the Kentucky Experiment Station has the honor of discovering the germ which is responsible for this disease—the B. Botulinus. While, evidently present at all times, it seems to require certain climatic or atmospheric conditions to become active, and extensive outbreaks usually follow a dry summer.

These germs may be present in "pockets" and only one or two in a herd pick up the infection, and become stricken, and again it may occur in a mass and entire herds be wiped out.

Dr. Graham has developed an antitoxin with which animals when treated may be allowed to eat the offending food with impunity.

Thus the stock is made immune, and at the same time the farmer is enabled to use up questionable feed which would otherwise be a partial or total loss.

Where vaccination is not used the only alternative is a complete change in the feed and a thorough cleaning and disinfecting of the premises.—The Kendrick (Ky.) Standard.

CHOLERA HITS YULE GEESE

Amsterdam, Holland, Dec. 10.—An outbreak of cholera in the Dutch goose pens has been causing heavy losses. Recently the number of deaths averaged 500 a day. Experts think that the disease was brought to this country by poultry imported from Poland, as many cases of cholera occurred in these shipments.

Thanks to a serum distributed by the state, the epidemic has been checked and the deaths have been reduced to fifty-five a day. In the affected districts serum has been injected into all the poultry and the pens have been disinfected.

It is pointed out that, through an omission in the contagious diseases law as affecting poultry, no examination is required previous to importation. As the canning of goose meat is an important Dutch industry, it would be unwise to prohibit the importation of poultry.
—The Chicago Daily News Co.

Dr. G. F. Barber of Tomah, Wisconsin, died on November 3, at Mercy Hospital, Chicago, following an illness of some months.

DO ONE THING AND DO IT WELL

We produce Anti Hog Cholera Serum and Virus—nothing more; and we believe we do that well. Our customers think so too.

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KANSAS CITY KANSAS

MEMORIAL MEETING FOR THE LATE DEAN HOSKINS

The Alumni Association of New York University held a largely attended memorial ceremony for the late Dean W. Horace Hoskins in the veterinary college buildings at 331-33 East 26th Street, New York City, on the evening of December 12, 1921.

There were present official delegates from Cornell University, University of Pennsylvania, the Department of Agriculture, Veterinary Corps of the Army, American Veterinary Medical Association, New York State Veterinary Medical Society, Veterinary Medical Association of New Jersey, Veterinary Medical Association of New York City, the United States Live Stock Sanitary Association, and Chancellor Elmer Ellsworth Brown, representing New York University.

Marstellar Goes to Cuba

Dr. R. P. Marstellar, professor of Veterinary Medicine and Surgery of the A. & M. College of Texas, has been selected as honorary delegate of the American Veterinary Medical Association, to attend the fifth annual medical congress to be held in Havana, Cuba, December 11 to 17, 1921.

The appointment is the only one made in the United States and was made by Dr. A. T. Kinsley, president of the A. V. M. A.

Dr. Thos. F. Arnold, veterinary inspector of the U. S. Department of Animal Industry, St. Louis, Mo., was held up by a highwayman and robbed of $10.00 while walking down the street near his home, on November 16, 1921.

A total area of 29,563 square miles in Texas, Georgia, Louisiana and North Carolina was released from federal quarantine during last month.

This releases 72% of the total area originally placed under quarantine by the federal government.

Dr. Jacob Helmer, Scranton, Pa., died at his home in that city a few days ago. He was born in Susquehanna county, Pennsylvania, sixty-two years ago, was graduated from the New York College of Veterinary Surgeons in 1887 and had been a practitioner ever since.

ASSOCIATION MEETINGS

ASSOCIATION	PLACE	DATE	SECRETARY
Alabama Vet. Med. Assn.	Auburn, Ala.	March, 1922	C. A. Cary, Auburn, Ala.
American Vet. Med. Assn.	St. Louis, Mo.		N. S. Mayo, Ravenswood, Chicago.
California State V. M. A.	Davis, Cal.	Jan. 1-7, 1922	Jos. M. Arburma, Hanford, Calif.
Central Mich. Vet. Society	Jackson, Mich.	Jan. 6, 1922	W. N. Armstrong, Concord, Mich.
Chicago Vet. Soc.	Chicago	2nd Tuesday of each month	J. B. Jaffray, Chicago, Ill.
Conestoga Vet. Club	Lancaster, Pa.	2nd Thursday each month	H. B. Brady
Illinois S. V. M. Assn.	E. St. Louis	August, 1922	D. M. Campbell, Chicago, Ill.
Indiana V. M. Assn.	Indianapolis	Jan. 10, 11, 12, 1922	J. L. Axby, Lawrenceburg, Ind.
Iowa Vet. Assn.	DesMoines	January 17, 18, 19, 1922	H. D. Bergman, Ames, Iowa
Kansas V. M. Assn.	Ottawa, Kans.	January 4 and 5, 1922	I. J. Pierson, Lawrence, Kans.
Kentucky Vet. Med. Assn.	Owensboro, Ky.	Feb. 8-9, 1922	Chas. W. Fisher, Danville, Ky.
Massachusetts V. A.	Boston, Mass.	4th Wednesday of month	H. W. Pierce, West Medford, Mass.
Minnesota S. V. M. A.	St. Paul	January 12-13, 1922	C. P. Fitch, Univ. Farm, St. Paul
Mississippi S. V. M. Assn.	Gulfport, Miss.	January 23, 24, 1922	J. A. Barger, Jackson, Miss.
Missouri Valley Vet. Assn.	Kansas City	Jan. 31, Feb. 1-2, 1922	R. F. Bourne, Ft. Collins, Colo.
Montana Vet. Med. Assn.	Billings	July, 1922	H. Marsh, Helena
Natl. Assn. of B. A. I.	Meet with A.V.M.A	Sept. 5-9, 1922	S. J. Walkley, Milwaukee, Wis.
New York S. V. M. Soc.	Syracuse	1922	C. E. Hayden, Ithaca, N. Y.
North Carolina S. V. M. A.	Asheville	June, 1922	J. P. Spoon, Burlington, N. C.
North Dakota V. M. Assn.	Fargo	July, 1922	R. S. Amadon, Agri. Coll., N. Dak.
Northern Tier Vet. Club	Williamsport, Pa.	Feb. 9, 1922	E. B. Mayer, Canton, Pa.
Ohio St. Vet. Med. Assn.	Columbus, Ohio	February 2-3, 1922	F. J. Lambert, Columbus, Ohio.
Pa. State Vet. Med. Assn.	Harrisburg, Pa.	January 24, 25, 1922	R. M. Staley, P. O. Box 1404, Philadelphia, Pa.
Philadelphia Vet. Club	Philadelphia	4th Tuesday of month	C. S. Rockwell, 5128 Chestnut, Phila.
San Joaquin Valley V. M. A.	Davis, Calif.	January 1-7, 1922	H. B. Winteringham, Fresno, Calif.
Southern Cal. V. M. Assn.	Los Angeles	3rd Wednesday of month	J. P. Bushong, Los Angeles.
Southeastern States V. M. A.	Nashville, Tenn.	February 6, 7, 1922	J. I. Handley, Atlanta, Ga.
Southeastern Mich. V. M. A.	Detroit, Mich.	2nd Wednesday, January, April, July, October	H. P. Hoskins, Box 471, Detroit, Mich.
Utah S. V. M. Assn.	Salt Lake City	October, each year	E. A. Bundy, Ogden
V. M. Assn. of N. Y. City	338 E. 26th St.	1st Wednesday of month	J. E. Crawford, Far Rockaway
Va. S. V. M. Assn.	Richmond	January 13-14, 1922	W. G. Chrisman, Blacksburg, Va.
Wash. State Col. V. M. A.	Wash. State Coll.	2nd & 4th Tuesday of month	S. Worley, College Sta.
Western Pa. Vet. Club	Pittsburgh	3rd Tuesday of month	Fred Weitzel, Pittsburgh
Wisconsin V. M. Assn.	Madison, Wis.	Jan. 18, 19, 20, 1922	O. E. Eliason, Madison
York Co. V. M. Soc.	York, Pa.	1st Tuesday March, June,	E. S. Baustickker, York, Pa.

The annual meeting of the Missouri Valley Veterinary Association will be held at the Hotel Baltimore, Kansas City, Mo., on January 31 to February 2 inclusive.

R. F. Bourne, Secretary.

The annual meeting of the Indiana Veterinary Medical Association will be held at the Claypool Hotel, Indianapolis, Ind., on January 10 and 11, and at the Indiana Veterinary College on January 12.

E. T. Davis, Secretary.

The winter meeting of the Kansas Veterinary Medical Association will be held at Ottawa, Kans., January 4 and 5, 1922. Headquarters will be at The North American Hotel, and sessions will be held at the auditorium of the new high school building.

I. J. Pierson, Secretary.

The next meeting of the Colorado Veterinary Medical Association will be held at 1525 Curtis Street, Denver, Colorado, on Thursday, January 19, 1922. I. E. Newsom is the secretary.

The next annual meeting of the Minnesota Veterinary Medical Association will be held at the St. Paul Hotel, St. Paul, Minn., on January 12 and 13, 1922.

C. P Fitch, Secretary.

The Association of the Southeastern States Veterinarians will be held Feb. 6 and 7, 1922, at Nashville, Tenn.

An interesting program is being arranged, a copy of which will appear in the next issue of this Journal. Some of the very best scientists and practitioners will give discussion on current problems.

All qualified veterinarians in the Southeastern states and adjoining states are urgently requested to attend this meeting. With your support the convention should prove to be the best one that the Association has ever had.

Any information concerning the program or meeting will be given through the secretary or other officers of the Association.

JOHN I. HANDLEY,
Secretary-Treasurer.

In an article found the The Hereford Journal, Dr. J. A. Kiernan, chief of tuberculosis eradication division of the B. A. I., states that

stockmen need never expect the government to appropriate enough money to test all of the animals of the country and advises owners to employ qualified veterinarians to help them clean up.

Pearl Alethia Murelle, wife of Dr. F. W. Rutherford, was born in Jackson, Tenn., September, 1875, and died at her home in Maysville, Mo., November 26, 1921, after an illness covering a period of about two years.

Livestock Trade With Mexico

The state of Texas is sending a special train into Mexico in line with the policy of the Mexican government to encourage agriculture and livestock raising in the southern republic. Federal veterinary inspector Jesse Hobard is in charge of the train, and will oversee the disinfection of stock pens wherever the stock is unloaded, and attend to the matter of preventing tick infestation and other diseases. Health conditions of live stock are exceptionally bad in Mexico. The train consists of ten cattle cars, two Pullmans for owners and caretakers and a buffet car.

The itinerary is as follows: Monterrey, Saltillo, San Luis Potosi, City of Mexico, Auguas Caliente, Zacatecas, Torreon, Chihuahua and Jaurez, entering the United States through El Paso.

Veterinarian Infected With Anthrax

Dr. W. D. Garber, assistant state veterinarian, Oklahoma City, Okla., has become inflicted with anthrax while in the line of duty, according to the report of the city health department of that city. Dr. Garber was sent several months ago to Pittsburgh county to combat an outbreak of anthrax in cattle there and while holding postmortem examinations had the misfortune of becoming infected in the hand. Through careful treatment, the disease has not yet been allowed to spread beyond the hand and wrist.

Texas cattlemen headed by J. E. Boog-Scott, chairman of the livestock sanitary commission and Dr. Leon G. Cloud, state veterinarian, are bringing pressure to bear upon Congress to obtain an emergency appropriation for tuberculosis eradication. The livestock sanitary

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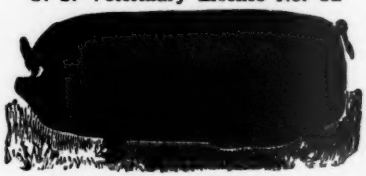

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commission of Texas has appropriated approximately $50,000 with which to pay indemnity to stockmen doing accredited tuberculosis eradication work, but under the terms of the law it is illegal to pay indemnity unless the federal bureau pays a like amount in co-operation with the state.

Dr. G. A. Ottinger, Jamestown, N. D., reports a case of dystocia in a pure bred shorthorn heifer due to twins, of which one was a dicephalous monstrosity with the hind extremities projecting upward instead of in a downward direction from the pelvis.

The Schuylkill Valley Veterinary Medical Association held a well attended meeting at Leesport, Pa., on Wednesday, November 16, 1921. A clinic was conducted in Dr. O. B. Ralm's hospital, limited to operations upon small animals. The literary program was carried out in the town hall, where papers were read by Dr. V. G. Kimball of the University of Pennsylvania, on colics; and by Dr. U. S. G. Beiber, on distemper. The next meeting of the Association will be held at Reading, Pa., December 21, 1921. R. L. Berger, Secretary, Hamburg, Pa.

A Doubtful Triumph.

The failure to secure the enactment of a law prohibiting the docking of horses in England is reported by the agricultural press as being "A Great Triumph for Breeding Societies." The bill before the House of Commons which, if passed, would have prohibited all docking, was thrown out at the protest of Hackney, Clydesdale, Shire and Hunter's Improvement societies and was won on the old, old plea that a horse might sometimes grab the lines with the tail.

Dr. J. M. Loes, formerly of Holy Cross, Iowa, has opened a veterinary office at Dyersville, Iowa, where he was welcomed by the local press as a good citizen and capable veterinarian.

Dr. J. W. Roberts has moved from Galena, Illinois, to Sycamore, Illinois, where he has opened an office for business.

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Dr. Fuller of Murray, Iowa, was recently shot and very severely, if not fatally wounded, by bandits while making a call and has been lingering between life and death in the Lutheran Hospital at Des Moines for some days. He has undergone an operation for the removal of one of the bullets embedded in one of the dorsal vertebrae and is reported as having a fighting chance for recovery.

Dr. B. F. Killham, chief veterinarian of the Farm Bureau of Michigan, is pounding away among the local bureau and granges on the matter of tuberculosis eradication.

The United States Live Stock Sanitary Association held its annual meeting at the Hotel LaSalle, Chicago, on the 28th, 29th and 30th of November, 1921.

The attendance, while slightly lower than during the past few years, constituted an enthusiastic audience devoted to the cause of sanitation. Hog cholera and abortion disease were the chief topics discussed.

Dr. T. E. Munce, Harrisburg, Pa., was elected President and Dr O. E. Dyson, Chicago, as Secretary-Treasurer.

Dr. C. C. Nidig, an officer of the veterinary corps during the late war, has opened an office at Aikin, Minnesota. He formerly practiced at Goodhue, Minnesota, where he had earned a good reputation as a specialist in cattle practice.

Dr. L. J. Hinson has completed the construction of a fine veterinary hospital at Newbern, Tennessee, having moved there from Kenton, Tennessee, three years ago.

Dr. Gruenwald of Plattsville, Iowa, is struggling with a very serious outbreak of hog cholera that is threatening the swine population of Grant county and is calling neighboring colleagues into consultation.

Drs. Reed and Scott, 380 High street, Akron, Ohio, have reopened their veterinary hospital which was closed since the last two years of the war. It is a neat, well-equipped infirmary, for both large and small animals, and has been a going establishment for more than twenty-five years.

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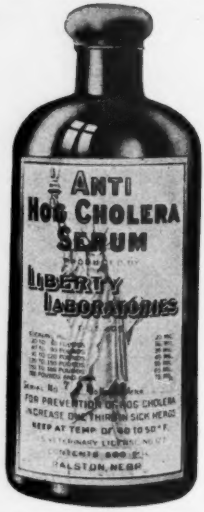

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Black Leg In Colorado.

According to a dispatch from Canon City, Colorado, black leg affecting cattle in that region has been found to be caused by overfeeding with succulent feeds and the idleness due to the easy access to abundant forage. It goes on to state that this condition of affairs can be fixed up with a serum. Fine business.

Death of Dr. Nelson T. Gunn

Dr. Nelson T. Gunn, of Butte, Montana, died suddenly November 28, of heart failure. Dr. Gunn was District Deputy State Veterinarian for the Butte district, and was one of the most highly respected and best known members of the profession in Montana. He was 41 years old, and had spent most of his life in Butte. He graduated from the Butte High School in 1897, and later studied medicine two years in Leland Stanford University. For a number of years he was connected with the city health office in Butte. In 1915 he graduated from the San Francisco Veterinary College and started practice in Butte. He entered the service of the B. A. I. the same year, and was in the meat inspection service at South Omaha for about a year. In 1916 he again took up practice in Butte, and in 1917 was appointed District Deputy State Veterinarian, in which position he served with remarkable success until his death.

Dr. Gunn was a member of the American Veterinary Medical Association and of the Montana Veterinary Medical Association. He was president of the Montana Association in 1918, and secretary in 1920. In 1920 he was appointed on the State Board of Veterinary Examiners, of which he was secretary at the time of his death.

Dr. Gunn's success in the state livestock sanitary work, due both to his personality and his professional ability, was such that his place will be very difficult to fill.

Dr. W. J. Musil of Castana, Iowa, has moved to Denison, where he has opened up the former office of Dr. Hal Simpson, who has transferred his activities to sunny California. Dr. Musil is a graduate of the Indiana Veterinary College and has been associated with Dr. F. J. Mitchel of Charter Oak, Iowa.

U. S. ARMY CORPS AREAS

1st Corps Area, Hdqrs. Army Base, South Boston, Massachusetts. Comprises the states of Maine, New Hampshire, Vermont, Massachusetts, Rhode Island and Connecticut.

2nd Corps Area, Hdqrs. Governors Island, New York. Comprises the states of New York, New Jersey and Delaware.

3rd Corps Area, Hdqrs. Ft. Howard, Maryland. Comprises the states of Pennsylvania, Maryland, Virginia and the District of Columbia.

4th Corps Area, Hdqrs. Ft. McPherson, Georgia. Comprises the states of North and South Carolina, Georgia, Florida, Alabama, Tennessee, Mississippi and Louisiana.

5th Corps Area, Hdqrs. Ft. Benjamin Harrison, Indiana. Comprises the states of Ohio, West Virginia, Indiana and Kentucky.

6th Corps Area, Hdqrs. 1819 West Pershing Road, Chicago, Illinois. Comprises the states of Illinois, Michigan and Wisconsin.

7th Corps Area, Hdqrs. Ft. Crook, Nebraska. Comprises the states of Missouri, Kansas, Iowa, Nebraska, North and South Dakota, Minnesota and Arkansas.

8th Corps Area, Hdqrs. Ft. Sam Houston, Texas. Comprises the states of Texas, Oklahoma, Colorado, New Mexico and Arizona.

9th Corps Area, Hdqrs. Presidio of San Francisco, California. Comprises the states of Washington, Oregon, Idaho, Montana, Wyoming, Utah, Nevada and California.

Vaccination and improvement in the water supplies is making typhoid fever a vanishing disease. In Chicago the death rate has decreased from 15.8 per 100,000 during the period of 1906 and 1910 to 1.1 per 100,000 during 1921, which is the lowest death rate among the large American cities. Buffalo, New York, is the highest with 22.8 per 100,000 during the former period and 5.1 per 100,000 during 1920.

Dr. John N. Servatius has purchased a farm south of Quenemo, Kansas, where he expects to move and engage in farming as a diversion from rural practice in the region of Williamsburg and Quenomo.

Dr. Merrill Agnew, an ex-service veterinarian of the A. E. F., has located permanently at Smith Center, Kansas, with a determination to build up a big practice by good work and strict attention to business.

DOCTOR—

Do you know that the investigations by Royal Commissions in Europe, indicating that the active immunization by abortion vaccine (live culture) is a valuable factor in reducing Abortion Disease, are now being verified by our ablest authorities in this country?

We have prepared a short summary on the present knowledge concerning Abortion Disease control. If interested, write us.

BOVINE ABORTION VACCINE (Live Culture). For use only on virgin heifers and non-pregnant cows in infected herds.

Per vial of 20 mils (1 dose)	$1.20
Per vial of 200 mils (10 doses)	9.00

BOVINE ABORTION BACTERIN (Mixed). For treating pregnant cows.

Per package of 10-10 mil vials	$4.50
Per vial 100 mils (10 doses)	4.00
Per vial 200 mils (20 doses)	7.50

METRITIS MIXED BACTERIN (Bovine).

Per package of 6-2 mil vials	$1.00
Per package of 12-2 mil vials	2.00
Per vial 20 mils (10 doses)	1.20

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The average hen lays about seventy eggs annually, some reach one hundred and twenty, a few two hundred and exceptional ones go still higher. These figures indicate that the industry holds out good prospects, but at the same time show that the hen is a "parasite" and the breeder in general an indifferent mortal.

A fresh egg dropped into a pan of water lies flat at the bottom of the pan, when it is from three to five days old it will tip to an angle of 20 degrees, when it is eight to ten days old to an angle of 45 degrees, when two weeks old to 60 degrees, three weeks old, 75 degrees and after a month it will stand vertically.

The greatest fault with the chicken industry on the farms of this country is the reckless disregard for adaptation and the violation of the simplest rules of breeding. Poor housing and indifferent feeding do the rest.

By using a little common sense the chicken on the farm will yield a bigger income for labor and investment than the stock pens or grain fields.

Professor D. H. Udall, New York State Veterinary College, Cornell University, participated in the program of the veterinary practitioner's course given at University Farm, Davis, California, January 2 to 6, 1922.

Conference Between Mexican and United States Live Stock Sanitary Officials.

Plans to protect Mexico against importation of infectious diseases of animals were discussed at a conference between officials of the two governments in October, at Dallas, Texas.

Dr. Carlos Pavia, bacteriologist; Samuel Torres Eldoruy, chief of statistics, and Guillermo Fuentes, agent, represented the Mexican government.

Dr. Harry Grafke, inspector in charge of Texas; Dr. William Thompson, inspector in charge of territory between Del Rio and Brownsville, and Dr. L. B. Ernest representing the Division of Tuberculosis Eradication, B. A. I., represented the United States Department of Agriculture.

The state of Texas was represented by J. E. Boog-Scott, of the State Live Stock Sanitary Commission, and Dr. Leon E. Cloud, state veterinarian.

Dr. Walter G. Maguire, Bethany, Mo., is one of the active workers in behalf of tuberculosis eradication in that state, notice of his activities appearing frequently in the local press.

A local association has been organized by the veterinarians of Scott, Morgan and Cass counties, Illinois, with Dr. B. F. Webster, of Winchester, as president; Dr. S. G. Carter, Jacksonville, as vice-president, and Dr. A. C. Bolle, Jacksonville, as secretary-treasurer.

Dr. O. W. Beiersdorf, Milford, Mass, reported to be ill at his home from an attack of heart disease, is said to be improving.

Good Work in Nebraska.

The Lancaster County (Neb.) Humane Society has opened up a luxurious hospital and kennels for friendless dogs at Lincoln, with Dr. C. J. Norden in charge. A tract of land has been set aside for the home and will be improved upon according to the increasing needs. Citizens of Lincoln are prohibited from killing dogs in any manner, and dogs falling into the hands of the humane society will have a good chance of finding a new home.

At the semi-annual meeting of the Northwestern Veterinary Medical Association held recently at Sioux City, Iowa, the following officers were elected: Dr. W. E. Hodam, president; Dr. N. R. Jongewaard, vice-president, and Dr. P. E. Ellis, secretary-treasurer.

Jinx Camps on His Trail.

Dr. Ben Dobkins, Tulsa, Oklahoma, lost his fourth car recently when a Ford was taken from his garage by thieves. He lost a Grant Six several months ago by having it burned up on the road, then a Ford roadster was stolen from him, after which he purchased a Dodge that fell into the hands of thieves a few day later. None of these cars have been recovered, and with one of them went all of his instruments and paraphernalia. The doctor doesn't know whether to buy another car or to hoof it in the future.

According to a press report, veterinarians from Kansas City and from the Kansas State Agricultural College were puzzled over the diagnosis of a mysterious disease of cattle that broke out in Oswego county, Kansas.

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The October meeting of the Kansas City Association of Veterinarians was held at Independence, Mo., at the hospital of Dr. H. M. McConnel. Seventy-five veterinarians and their wives were in attendance. A clinic in charge of Dr. S. L. Stewart, Olathe, Kansas, and at which Drs. Jungermann and Young performed interesting operations, featured the program.

Northern San Joaquin Valley Association.

Holding their regular monthly meeting, members of the Northern San Joaquin Valley Veterinarians' Association met at the Lincoln hotel, Stockton, last evening. "Laboratory Diagnosis and Its Relation to the Practitioner," was the subject of an address by Dr. J. O'Toole of Sacramento, and Dr. Fox spoke on "Small Animal Practice." Dr. Ronesse of Turlock discussed "Diseases of Chickens."

The members in attendance at last evening's meeting, besides the speakers, were: Dr. O. A. Diller of Stockton, Dr. R. A. Ball of Modesto, Dr. A. J. Whiataker of Manteca, Dr. G. P. Rebold of Stockton, Dr. C. L. Wrinkle of Stockton, Dr A. C. Rosenberger of Stockton, Dr. A. I. Somsen of Stockton, Dr. N. H. Locke of Lockeford, Dr. Nathan Sinai of Stockton, Dr. J. C. Quinn of Antioch, Dr. W. W. Davidson of Stockton, Dr. F. L. O'Neal of Newman, and Dr. Davies of Stockton.

Twenty-five years ago we were lamenting over the two-year schools. Today, specialists are made in seven days in the state of Iowa.

Vaccination Meet for Centerville, Iowa

Centerville, Dec. 2.—Sixty men have signed up for the vaccination school. Definite arrangements have been made for the school. Dr. J. S. Graft will be the veterinary instructor in charge, school beginning at 10 o'clock Thursday morning, December 8, in the music assembly hall on the third floor of the Centerville high school. The school will begin promptly at 10 o'clock and Dr. Graft has given warning that all who take this school course must be there in their seats promptly at that hour and must attend the full session, morning and afternoon, both Thursday and Friday, if they expect to get a passing grade.

The Wabash Valley Veterinary Medical Association held its annual meeting at Logansport, Indiana, December 5, 1921. The princi-

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THE INDIANA VETERINARY COLLEGE

January, 1922

The following subjects, for which there is a demand for more information by established practitioners everywhere, will be taught: General Diseases of Swine, Dr. A. T. Kinsley; General Diseases of Cattle, Dr. T. H. Ferguson; General Surgery, Dr. L. A. Merillat; Diseases of Breeding Animals, Dr. W. L. Williams.

The faculty of the College will give assistance in every way.

The course will comprise two weeks beginning Jan. 16, 1922. It will be as practical, as up-to-date and as intensive as it is possible to make it. The cost will be moderate.

A post-graduate diploma will be issued to those satisfactorily acquitting themselves.

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pal speakers were: Dr. L. C. Kigin, Purdue University; Dr. J. E. Gibson, Bureau of Animal Industry, Indianapolis; and Dr. R. C. Julian, state veterinarian. Besides a very interesting program covering state live stock sanitary work, affairs relating to the annual meeting of the state association were discussed.

The officers elected were: Dr. W. B. Wallace, Marion, president; Dr. W. G. Musselman, Denver, vice-president; and Dr. F. E. Kling, Peru, secretary-treasurer.

Drs. Kixmiller and Kling presented an interesting discourse entitled "Postmortem Work on Animals." The wives and lady visitors were entertained by Mrs. Kixmiller.

Dr. Kelene, veterinarian for The Park Falls Lumber Company, has moved from Grand View to Loretta, Wis.

The Federal Meat Inspection Service during 1921 maintained inspection in 892 establishments in 265 different cities, which compares with 897 establishments in 262 cities in 1920.

During 1921 inspectors inspected 62,252,442 animals and condemned 189,874 sheep, hogs, cattle, goats and horses. The number of horses inspected was 246, mostly in New ork, New Jersey and Ohio. (Ext. Weekly News Letter, Dept. Agr.)

MEETING OF THE NATIONAL VETERINARY MEDICAL ASSOCIATION OF GREAT BRITAIN AND IRELAND, LIMITED

The thirty-eighth annual general meeting of the association was held at the Royal (Dick) Veterinary College, Edinburgh on July 28, 29 and 30, 1920, under the presidency of Dr. O. Charnock Bradley. The proceedings were published and issued to all members.

Dr. O Charnock Bradley was re-elected president for the year 1920-1921 and the following officers were appointed:

Vice-Presidents — Sir Stewart Stockman, Messrs. W. A. Taylor, A. Watson and A. Gofton.

Trustees—Messrs. F. W. Garnett, S. H. Slocock and T. Salusbury Price.

Auditors—Professor Macqueen and a professional accountant.

Treasurer—Professor G. H. Wooldridge.

Secretary and Editor—Mr. John Malcom.

Assistant Secretary—Mr. Brennan De Vine.

The lamented death of the secretary occurred in September, and apart from the high

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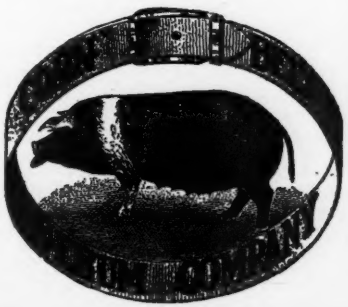

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VETERINARY MEDICINE has a good program for 1922. If your subscription is about to expire, renew it. It will not pay you to miss a single copy.

THE INDEX for Vol. XVI. (1921) will soon be ready for distribution. Subscribers desiring copies will please order them.

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esteem, indeed affection, with which he was regarded, his decease was a severe blow to the association in the very difficult period through which it was passing.

The following committees have been formed:

Publication Committee.—Composed of one elected representative from each division.

Finance and Advisory Committee.—Consisting of the president, trustees, treasurer, secretary, assistant secretary and Messrs. Brittlebank, McIntosh, Lloyd and Clarkson.

Salaries Committee.—To consider the remuneration of salaried whole time veterinary surgeons.

An Editorial Committee.—Composed of Professor Macqueen and Messrs. G. P. Male and J. W. McIntosh. This committee is to be elected annually.

Number of Meetings

During the year under review there have been 10 meetings of council and 12 committee meetings.

The past year has been the most important in the history of the association, for it has witnessed the incorporation, and the acquisition of a professional journal—The Veterinary Record.

Incorporation and General Meeting

The association became incorporated on April 18, 1921, and in order to conform to the Articles of Association a general meeting was called for Wednesday, June 29, 1921, when the officers were formally elected, and the various steps taken by the association prior to registration were confirmed.

Appointment of General Secretary and Editors

At a meeting of the council held on October 6, 1920, Mr. J. B. Buxton was appointed general secretary, and at a subsequent meeting on November 25, 1920, Captain J. T. Edwards (since resigned) and the secretary were appointed editors of The Veterinary Record.

Resolutions

The following resolutions have been dealt with by the council:

(a) From the Yorkshire division re control of manufacture and sale of tuberculin. A letter was drafted by the president and secretary and sent to the Medical Research Council, Royal College of Veterinary Surgeons, Ministry of Agriculture, Ministries of Health for England, Scotland and Ireland; the British Medical Association; the Department of Agriculture and Technical Instruction, Ireland; and the Board of Agriculture for Scotland.

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Some correspondence passed between the Ministry of Agriculture and this association, and the Ministry expressed the opinion that the standardization of tuberculin was impracticable.

(b) From the Eastern Counties Division re veterinary attendance on boarded out army horses.

This resolution was forwarded to the war office and as a result a discussion took place between the secretary and the director of the particular department when it was found to be impossible to carry the matter further, at present.

(c) From the Joint Council R. C. V. M. A., S. C. V. S., and S. E. V. A., re the inspection of meat by Veterinary Surgeons.

This resolution was forwarded to the Ministry of Health.

(d) Concessions to veterinary surgeons in regard to motor taxation.

This resolution was sent to the ministry of transport and a reply was received to the effect that the question of concessions to medical and veterinary practitioners had been considered, and that the special committee appointed to deal with this question had recommended that such concessions were undesirable.

(e) From the North of Ireland Division re allowance for time served with the army by veterinary surgeons who subsequently joined the staff of the D. A. T. I.

The secretary was informed that the conditions did not apply to officers of the D. A. T. I. and Ministry of Agriculture.

(f) From the Derbyshire Division, regarding the supply of vaccine for the treatment of joint-ill in foals. This was supported.

(g) From the Southern Counties Division, protesting against the increased telephone charges, was forwarded to the Postmaster-General.

Dangerous Drugs Act

As a result of representations made to the secretary of state regarding the proposed regulations to be made under Section 3 and 7 of the Dangerous Drugs Act, 1920, the secretary was invited to represent the Association at a conference at the home office, to which the Central Chamber of Agriculture, the National Farmers' Union, the National Farmers' Union of Scotland, and the R. C. V. S. had also been invited to send representatives.

It was found that the representatives of the farming interests did not require any modifi-

cation to which the veterinary profession could take exception

The several modifications asked for on behalf of veterinary surgeons were in general conceded by the home office.

Membership

At the beginning of the year the membership of the association was 372, this figure has increased to 1115.

On January 1, when The Veterinary Record was taken over by the association, there were 1760 subscribers. Owing to the altered conditions the number has fallen to 1513, but it is anticipated that there will be little, if any, further decrease.

It should be noted that the acquisition of a professional journal during the period under review was a particularly hazardous undertaking, owing to the increased cost of production and the very severe business depression. Moreover in view of the considerable alteration in the price of the journal and in the procedure of the association, the progress which has been made in an endeavor to obtain a representative "National" may be regarded as very satisfactory.

All members of the profession who have not yet become members of the association have recently been circularized, and if, as is confidently anticipated, a satisfactory response is obtained, the position of the association, financially and numerically, will be assured.

At the same time an earnest appeal is made to all members of the national—to endeavor by every means at their disposal to provide at least one other member.

JOHN MALCOLM, Secretary.

Histological Examination of the Spleen in Infectious Anemia of Horses.

D. Mrowka in Zeitschr. f. Veter. Aug., 1920.

The author refers to his previous work on the spleen of healthy and anemic horses (Zeitschr. f. Veter., February, 1919). In his present publication he deals particularly with the cause of the color changes and also with the histological structure of the increased pulp of the spleen. The histological examination of the spleen has a relative importance for the diagnosis of infectious anemia, only in the presence of extreme depigmentation. Myeloid changes in the spleen do not occur in infectious anemia. The hyperplasia of the spleen and of the follicle results from the new formation of functioning tissue cells; the hyperplastic enlarged spleen should be

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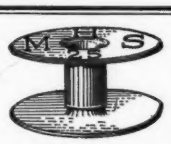

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considered as a reaction of the functionating tissues and is an indication of a regenerative process. The anemic manifestations indicate an intensive destruction of hemoglobin by the spleen. The pathologic-anatomical changes of the spleen showed no uniformity in the different stages of the disease.

The normal spleen owes its brown color to the high content of iron pigment. The distinction in color in anemic spleens are dependent on their content of pigment; in spleens of a flesh and raspberry color the pigment has disappeared to a minimum. The formation of hemosiderin in the course of the disease is not a pathological but a regenerative process for the renewal of the exhausted reserve iron and for the reproduction of the normal condition.

Pyotherapy in Epizootic Lymphangitis.

Dr. F. Lenzi in La Clinica Vet., 1920, Vol. 15 and 16.

In 1918 Bridre published in the "Bull. Soc. Centr. de Med. Vet." a new pyotherapeutic method for epizootic lymphangitis which supposedly possesses excellent curative action. For the confirmation of this work the author undertook the following experiments: He selected three horses and three mules, seven to fifteen years of age, in which epizootic lymphangitis was diagnosed. With subcutane- was produced from which the pus, after diluting with phenol solution, was injected subcutaneously into the same, as well as to the other affected animals; in six to fourteen-day intervals nine such injections were administered. Not the slightest improvement was observed from this treatment in five of the cases. The author does not attribute the recovery of the sixth case to the treatment but to a natural recovery which sometimes occurs in untreated animals affected with epizootic lymphangitis. In conclusion the author reports two other cases of epizootic lymphangitis which were diagnosed microscopically and which recovered without any interference. Two months after the admittance of the affected horses to the clinic, the nodular enlargements disappeared and the ulcerations cicatrized; the swelling of the regional lymph glands and the affected lymphatics regained their normal appearance. The animals were under observation for a long time without showing any indication of relapse.